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REVIEWS

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RX-A860 AVR
BenQ Full HD
projector
42in JVC TV
Bluesound
soundbar
LG Minibeam

OLED SUPER SCREEN!

Philips' top-flight 4K TV touches down...

PLUS
Next-gen
tech TV from
Samsung
and LG

Play on!

We pick the best
app streamers

**ULTRA HD
BLU-RAY FOR ALL**



Meet Panasonic's £300
4K movie machine

Bass beasts

Stunning 16in
SVS subwoofers
on test

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JACK'S BACK!

Tom Cruise is out
for justice in *Jack
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- THE MAGNIFICENT SEVEN 4K
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→ READER'S CINEMA → FANTASTIC BEASTS ON BLU → OPINION → ARCAM AV860

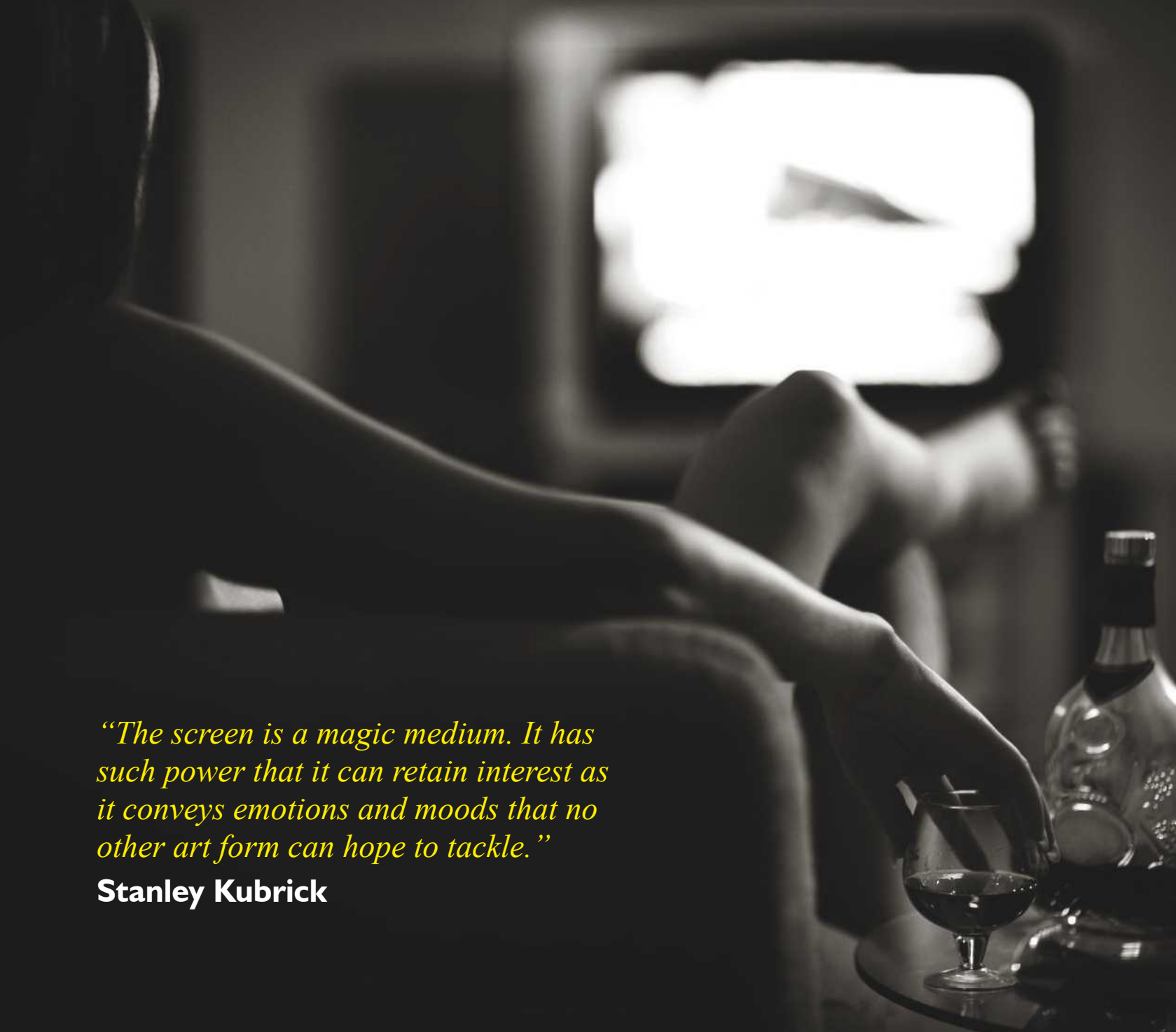
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"The screen is a magic medium. It has such power that it can retain interest as it conveys emotions and moods that no other art form can hope to tackle."

Stanley Kubrick

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NEXT ISSUE ON SALE: March 23, 2017



Welcome

OLED is the TV technology that has been teasing us for years. First seen on diddy desktop sets as far back as 2007, it's since gained a toe-hold in the UK market via premium bigscreen models – predominantly from LG – but played second fiddle to more traditional LCD designs.



Yet all this could be about to change in 2017. Our cover star, Philips' 55in OLED debut, is the first of a new wave of screens that pledge to bring greater choice, better performance and – hopefully – more enticing prices.

OLED TVs use a self-emissive panel that brings your movie collection to life via pristine black levels, wide

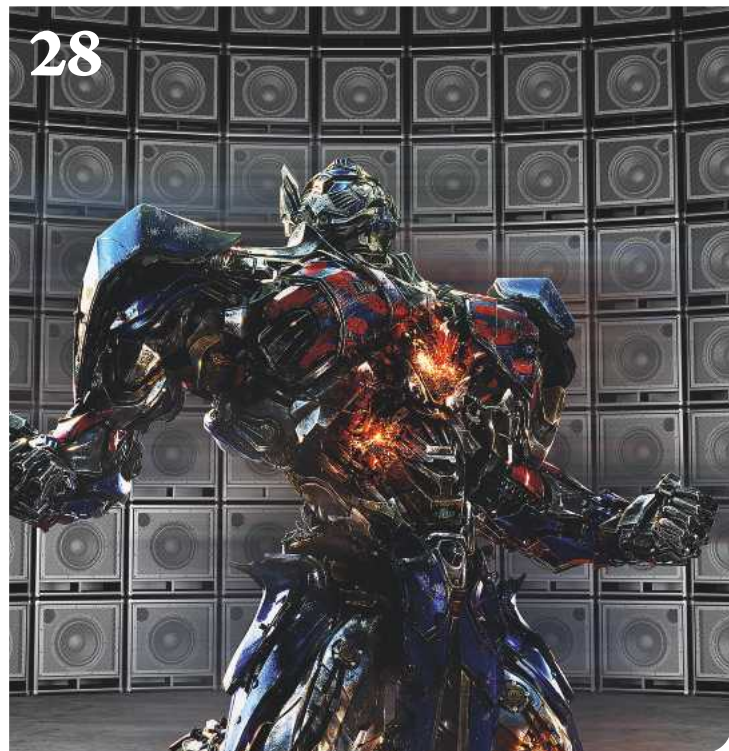
viewing angles and accurate colour blends. So, it's the best TV tech around, then? Not so fast! As we report on p20, upgrades with LCD panel design (including QLED) are coming thick and fast, aiming for unseen levels of brightness and colour volume.

OLED vs LCD – another format fight is warming up!

Mark Craven
Editor



MENU



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John Archer:
The UK's most experienced TV tester cut his teeth as an early HCC staffer



Jon Thompson:
Film producer and post-production expert delves deep into Hollywood and AV



Steve May:
HCC's former Editor-in-Chief is one of the UK's most respected AV journo



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Adrian Justins:
Made his name as the editor of *What Video & TV* and *What Home Cinema*

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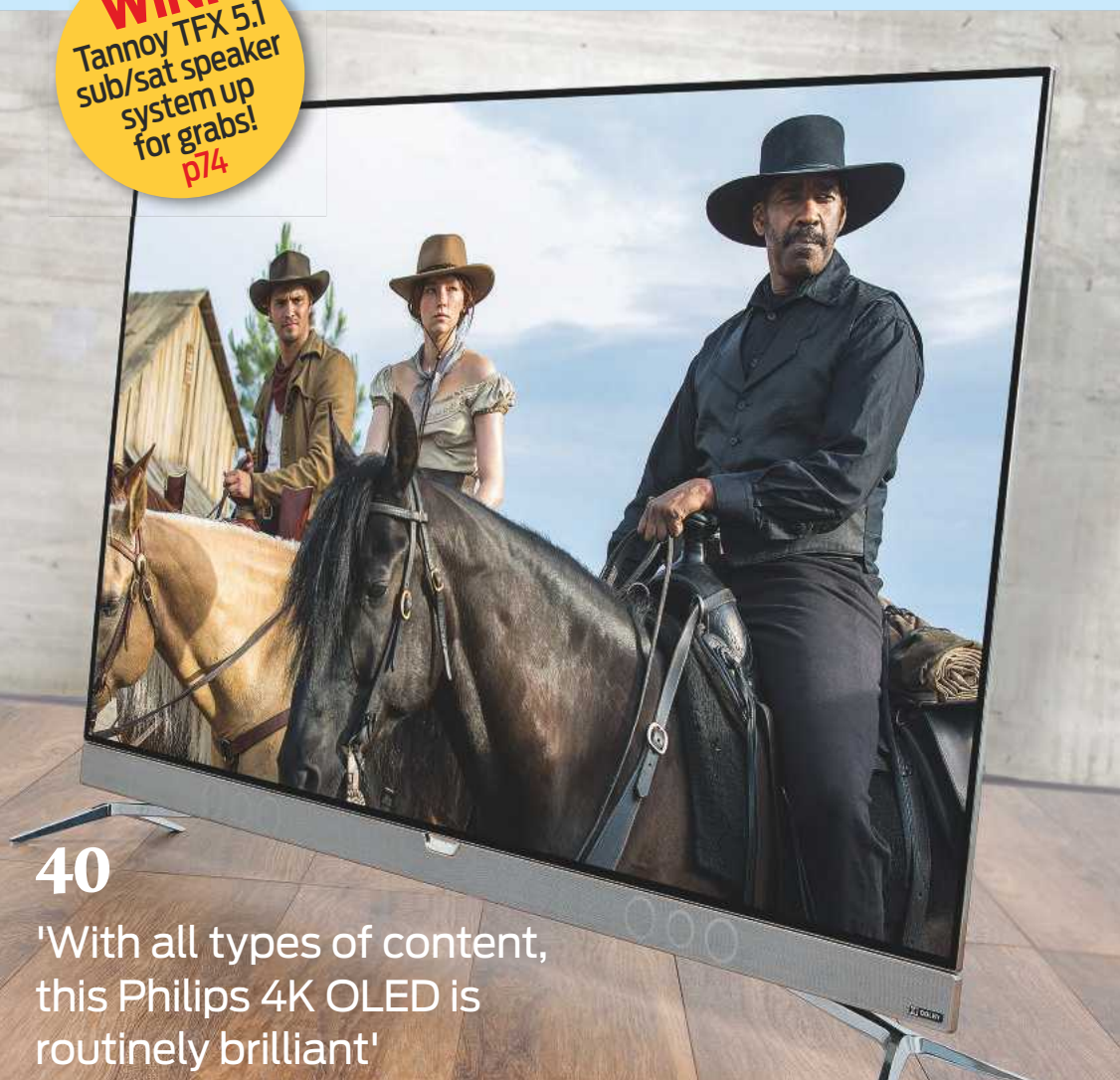
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'With all types of content, this Philips 4K OLED is routinely brilliant'



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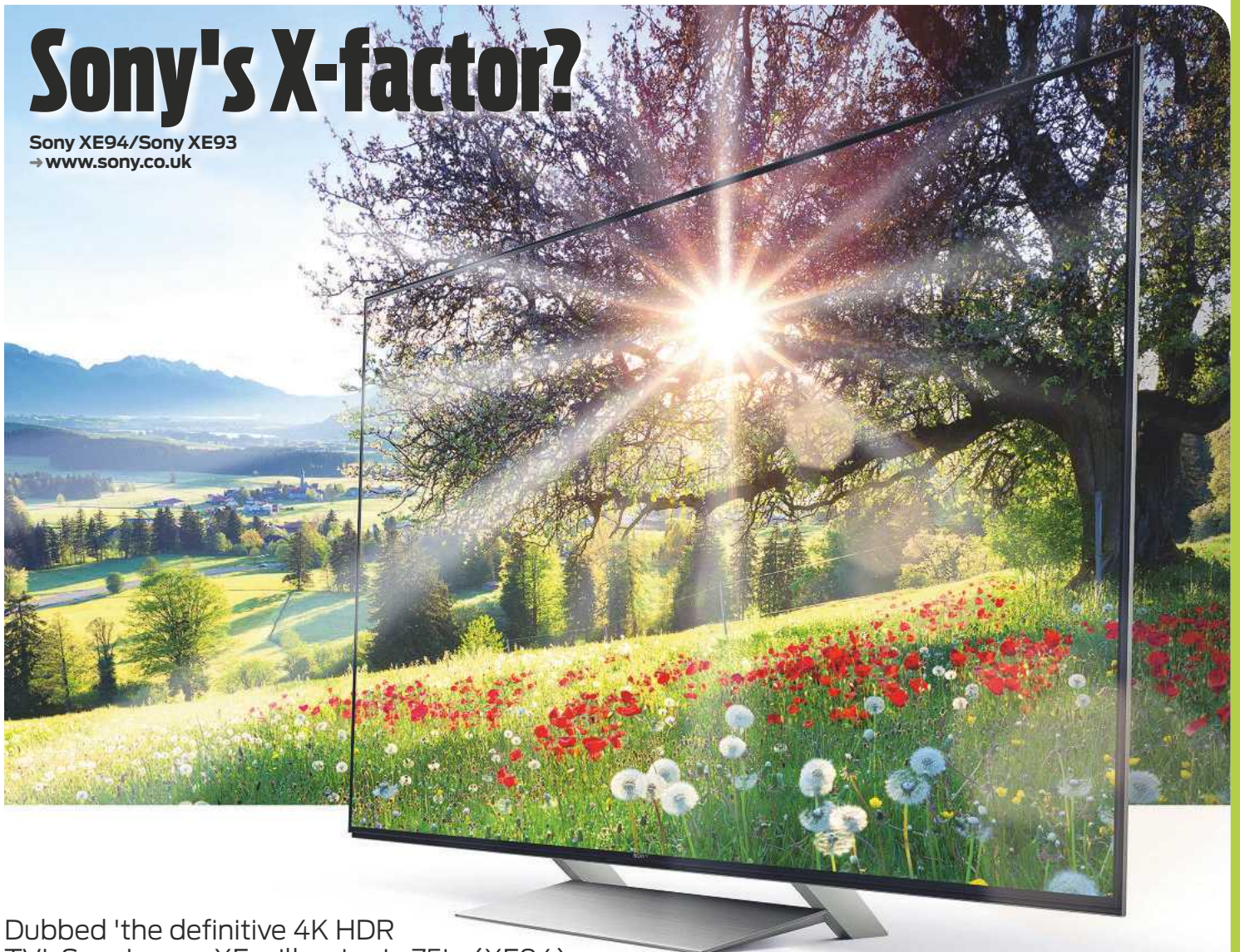
DYNAUDIO

BULLETIN

→ **News Highlights** **PANASONIC** TV titan pushes the performance of IPS LCD **ARCAM** Brit brand unveils new high-spec AV860 processor **SKY Q** Satcaster to launch dish-free service in 2018 **ONKYO** Entry-level AVR ready for 4K/HDR **NEWS X10** The hottest news stories in bite-sized chunks **FANTASTIC BEASTS** ...and where to find them on BD and DVD **& MORE!**

Sony's X-factor?

Sony XE94/Sony XE93
→ www.sony.co.uk



Dubbed 'the definitive 4K HDR TV', Sony's new XE will arrive in 75in (XE94) and 65in/55in models (XE93) this Spring. As with last year's XD series, only the 75-incher employs a full-array direct LED backlight; the two smaller screens use the brand's Slim Backlight Drive+ edge LED illumination tech. Aiming to deliver a precise performance across the range is Sony's X1 Extreme processor (also featured on its A1 OLED TV). Dolby Vision HDR support is on the menu, as is Android TV. Pricing is still TBC.

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Precision without power

Arcam AV860 → www.arcam.co.uk

Arcam has officially launched a new high-end processor, the £4,000 AV860. As with the brand's last batch of AV receivers, the AV860 offers potent Dirac Live room correction technology to tailor its multichannel output to your speakers and listening environment, in conjunction with Dolby Atmos/DTS:X decoding to 7.1.4 arrays. Support for 4K and HDR sources is provided via six HDMI 2.0a inputs with HDCP 2.2, and the processor caters for music fans via Spotify Connect, integration with Arcam's MusicLife UPnP app, USB hookup and 'audiophile-grade' Cirrus CS42528 DAC.



Entry-level AVR ready for HDR



Onkyo's latest AV receiver may be a budget model, but the company is still catering for key features – not only

does the new 5.1-channel TX-SR373 provide 4K passthrough (supporting HDR 10, HDCP 2.2 and 4K/60p video) via its 4-in/1-out HDMI stage, it also offers Onkyo's AccuEQ Room Calibration tech for the first time at a £300 price point. Other goodies include Bluetooth streaming and USB hookup (but no 'net connection), with associated compressed audio enhancement. www.uk.onkyo.com

Compact soundbar, big audio



Monitor Audio has launched a new stereo soundbar. Within its slim-line casing, the £400 ASB-10 finds room

for a quartet of 3in C-CAM mid/bass drivers and dual 1in Gold C-CAM dome tweeters, powered by four Class D amplifiers delivering a claimed 100W of muscle. If you need a little more bass in your life, an optional wireless active subwoofer (WS-10, pictured) is also available. Priced £300, this uses an 8in long-throw C-CAM driver powered by a 120W amp.

www.monitoraudio.co.uk

Sky dishes out Q service

Satcaster to launch full TV package in 2018 delivered via broadband

Sky has announced plans to drop the satellite dish and make its Sky Q service available over broadband internet for the first time. The company says it expects the new service to launch in 2018.

Currently, Sky Q (and Sky+) employ a mixture of satellite and broadband to deliver content, and a satellite dish installation is a requisite part of the package, although since 2013 it has made certain material available to non-satellite owners through its Now TV subscription platform/hardware.

The new-look service will still be based around hardware – Sky says it will be 'delivered through a box' – but there's no word as to what the channel lineup will be, or whether it will include the 4K content that is a USP of Sky Q. It would be highly unlikely, though, for the service not to feature Ultra HD material, especially as movies and entertainment programming is already fed via broadband (only Sky's 4K sports coverage is distributed via satellite).

Removing the need for a dish installation would give Sky access to a larger potential customer base – some UK homes fall outside of its coverage due to poor satellite signal strength, or local restrictions on fitting a dish. At the same time,



Jeremy Darroch: 'We enter 2017 focused on giving more quality, value and choice to our customers.'

however, homeowners would need access to a reliable, high-speed broadband connection.

In the same announcement in late January, the satellite giant said there had been a 'strong response from customers to Sky Q,' and revealed the beefed-up hardware/software service has been taken by around 600,000 homes, with almost all those having a multiroom subscription.

Sky says its Q customers are watching 10 per cent more TV compared to those with Sky+, which it believes is due to improved personal recommendations and the new user interface. Sky+ is no longer available to new subscribers.

It's also reporting bumper figures for digital downloads, claiming a total of seven million movie downloads in one week over the Christmas period, and suggesting its Sky Store platform is 'on track to become the number 1 digital retailer in the UK, overtaking [Apple's] iTunes by the end of 2017.' It currently has a 30 per cent market share.

'We enter 2017 focused on giving more quality, choice and value to our customers,' says Group Chief Executive Jeremy Darroch.

Sky Q: making us watch more TV than before...



Playlist...

Team HCC spins up its disc picks of the month

Popstar: Never Stop Never Stopping (All-region BD)

Plenty of quotable lines and catchy songs make Andy Samberg's music industry mockumentary tailor-made for repeat viewings.



Star Wars: A New Hope (All-region BD)



Rogue One... left us with a pressing need to see the story continue by rewatching the original *Star Wars* yet again. But why stop there?

Blair Witch (Region B BD)



This belated horror sequel makes a strong impression on Blu-ray with its stonking Dolby Atmos sonics.

Girls: Season Five (All-region BD)



Lena Dunham's comedy-drama bounces back from a middling fourth year with its funniest batch of episodes to date.

The Infiltrator (All-region BD)



A superb central performance by Bryan Cranston makes this true crime story well worth a look.

At the 'plex...

Heading out to see a flick?
Catch these this month

Logan



March 07: Hugh Jackman pops his claws one last time in this third Wolverine solo film. Based on the celebrated *Old Man Logan* comic book series, the movie is set in the near future and finds an ailing Logan helping a mysterious young mutant with similar powers.

Kong: Skull Island



March 10: The giant ape undergoes yet another reboot in this tie-in to 2014's *Godzilla*, which features a group of explorers and soldiers encountering King Kong (and other monsters) in the 1970s.

Beauty and the Beast

March 17: Disney's next live-action update of one of its classic 'toons casts Emma Watson in the role of Belle opposite Dan Stevens' Beast. Can it possibly live up to the original, not to mention last year's *Jungle Book* remake?

Brit flicks ride high in 2016

UK box office in record-breaking form, buoyed by beasts and babies

UK cinemagoers spent a record amount at the box office in 2016, in what was a good year for Brit-produced movies with both *Fantastic Beasts and Where to Find Them* (see p14) and sequel *Bridget Jones's Baby* finishing high in the charts. Yet it was *Rogue One: A Star Wars Story* that predictably claimed the number one spot.

The Disney movie amassed £56.4m in cinemas between its release on December 15 and January 5 according to industry body Comscore. That figure grew throughout January, of course.

In fact, those attending a *Star Wars* screening in its final week of 2016 will have helped the movie slip past the J.K. Rowling fantasy *Fantastic Beasts...*, which ended the period with £52.1m.

Following not far behind was rom-com *Bridget Jones's Baby* (£48.1m), while top ten positions for Disney's live-action remake *The Jungle Book* (£46.2m) and Pixar's *Finding Dory* (£42.9m) prove the UK appetite for family flicks remains strong.

Below these are a trio of superhero capers more likely to have whetted an HCC reader's appetite, with *Deadpool* (£37.8m) out-gunning *Captain America: Civil War* and *Batman v Superman: Dawn Of Justice*,

which grabbed £36.9m and £36.6m respectively.

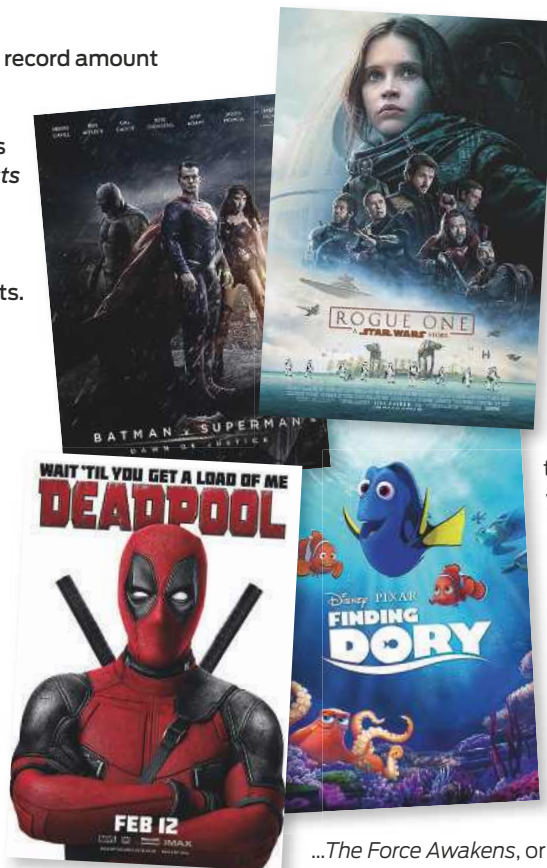
Ninth in the top ten is *The Secret Life Of Pets* (£36.3m), while at no 10, perhaps surprisingly, is *Star Wars: The Force Awakens* (£35.9m), which was, of course, first released in 2015.

Battle of the studios

Total takings for the year tipped £1.329bn, a small year-on-year rise over 2015 – which was previously the UK's most successful box office period. Yet there's devil in the detail. None of 2016's Summer releases came close to reaching the £64.5m performance of 2015's *Jurassic World*, and ...*Rogue One* will fall a long way short of the of the £123m earned by

...*The Force Awakens*, or *Spectre*'s £94m. Instead, tills rang across a wider range of releases, and for the first time all the top 10 films took in more than £35m.

As for the battle of the studios, Disney and Fox were clear winners, while Sony Pictures will be looking for a better year in 2017, following box office disappointments with the likes of *Ghostbusters* and *Passengers*. Sony CEO Kaz Hirai is reported to be taking on a greater role at the company's entertainment division, in an effort to turn around the struggling studio. Another James Bond flick would certainly help...



Phantastic treat for fright-fans

4K restoration headlines Arrow Video's feature-packed *Phantasm* Blu-ray boxset

UK-based fans of filmmaker Don Coscarelli's iconic horror franchise can finally ditch their old *Phantasm Sphere: Limited Edition* R2 DVD set following the news that Arrow Video is releasing a Blu-ray boxset.

Hitting shelves on April 24, the new *Phantasm 1-5: Limited Edition* Blu-ray boxset includes a new 4K restoration of the original 1979 film and marks the UK home entertainment debut of the latest (and probably last) film in the series, 2016's *Phantasm: Ravager*.

The new 4K restoration of cult horror flick *Phantasm* was overseen by franchise fan J.J. Abrams!



Arrow is also cramming the set with bonus goodies including commentaries, trailers, deleted scenes and *Making of...* featurettes. Meanwhile a bonus BD houses the feature-length *Phantasmagoria* documentary charting the making of the first four movies, plus a tour of filming locations with series star Reggie Bannister.

Limited to just 10,000 copies, the £100 Blu-ray boxset comes with an exclusive 152-page book, a replica *Phantasm Sphere* and is decked out with newly-commissioned artwork. www.arrowfilms.co.uk

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www.qed.co.uk/when-length-matters

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Extras...

Small items that could make a big impression...

Resident Evil 4D Candle



Created to accompany the new *Resident Evil 7: Biohazard* game (reviewed on p98), this candle promises to 'enhance the horror' by filling your nasal passages with the scent of the Baker family's mansion. So, if you're the kind of person who likes to strap on a VR headset and flail around near an open flame, this official Capcom candle can be yours for just £10.

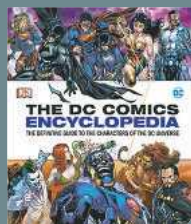
100 Manga Artists



Taschen celebrates the superstars of the Japanese comic book scene with this A-Z directory of the most

notable manga artists – both established legends and new talents. As well as the beautifully reproduced artwork, this £13 book features biographical and bibliographical info for each entry, alongside details about their most famous creations.

The DC Comics Encyclopedia



Subtitled the 'definitive guide to the characters of the DC Universe,' this updated coffee table

book will set you back around £30 and is packed with profiles of more than 1,000 heroes and villains, ranging from familiar icons such as Batman and Superman, to more obscure characters including the Native American hero Owlman and time-displaced warrior Viking Man. A handy, if somewhat brief, overview of the history of the DC Universe up to the recent 'Rebirth' reboot is included.

Panasonic's OLED rival

'Amazing' HDR IPS LCD flatscreens promise 1,000,000:1 contrast ratio

Everything you think you know about LCD TVs is about to change. Panasonic says it has developed a new IPS panel technology that can deliver black levels and a dynamic range comparable to OLED.

Offering a claimed contrast ratio of over 1,000,000:1, which is 600 times greater than that of conventional IPS panels, the technology has been created by the Panasonic Liquid Crystal Display Company, a subsidiary of Panasonic Corp.

Conventional IPS (In-Plane Switching) liquid crystal panels are known for their bright images and wide viewing angles, but are unable to deliver deep blacks and exhibit limited contrast. The extremely high contrast ratio of Panasonic's super IPS panel has been made possible by a newly developed light-modulating cell that permits pixel-by-pixel control of backlight intensity. Positioned between the backlight and the regular LCD cell display, it enables the screen to deliver HDR luminance and pitch-black when required. The result is said to be the elimination of LCD's floating blacks, wherein dark parts of an image appear to float when overall picture brightness is increased.

The light-modulating cells are constructed from a light-tolerant material said to provide stable operation at a maximum brightness of 1,000 nits. And as light leakage is significantly reduced, there's much finer gradation control.

Handily, this new IPS display can be made using existing LCD panel manufacturing facilities. Panasonic says its G8.5 (8.5th-generation) production lines are capable of manufacturing 10in to 100in displays. Early prototypes have included 55in, 31in and 12in panels.

Purely for professionals?

Initially, the new IPS technology will be sold to business and pro AV markets. The company believes the panel is ideal for professional HDR monitors used in broadcast TV studios and



Masahiro Shinada: 'We will probably position OLED at 50in and above. This new IPS tech we can make in smaller sizes.'

video production facilities. The high-contrast panel is also destined for medical monitors and in-car displays.

The obvious question is: when will the new IPS screens migrate from professional use into consumer TVs? The technology would make a perfect stablemate to Panasonic's OLED model, and presumably prove more affordable when economies of scale kick in.

Positioning LCD and OLED

Masahiro Shinada, the global head of Panasonic's TV business division, knows about such things, so we put the question to him directly.

'Well our focus is on (better) picture and sound quality, so we will expand this concept,' he told *HCC*. 'The new IPS panel technology was developed for our B2B [business to business] area, but we are now considering it for B2C [business to consumer].'

When it comes to performance, he describes the next-gen IPS technology as 'amazing – especially contrast. It's almost similar to OLED!'

With the launch of the incoming EZ1002, Panasonic has elevated OLED into premium position, but it has yet to announce a wider OLED screen range. 'We have not decided yet how to line up our OLED,' Shinada-san told us, 'but we will probably position OLED screens at 50in and above. This new IPS panel technology we can make in smaller sizes – 50in, 43in. That is the LCD area.'

So just how long will we have to wait until IPS LCD v2.0 becomes available in a TV we can actually buy? Shinada-san isn't saying.

'At this moment that is top secret...'



Panasonic continues to experiment with OLED (main) and LCD (above) screens for a variety of domestic and professional applications



This month's top 10 news stories in handy, bite-sized chunks...



1 Invisible speakers

Loudspeaker maker Monitor Audio has launched a new in-wall/in-ceiling model promising 'best in class' performance. With its MDF back box measuring 95mm deep, the new IV140 is designed to fit into all conventional 4in stud bays within walls and (once plastered) can be finished with paint, light wallpaper or fabric for an 'invisible' appearance. The two-way speaker partners dual high-frequency transducers with a 'large low-frequency exciter.' Frequency response is rated to 55Hz or 75Hz depending on sealed or open-back installation.

2 Pioneering 4K on PCs

Watching 4K Blu-rays on your Windows computer has become a reality with the news that Pioneer is launching the world's first Ultra HD BD drives for PCs. The BDR-S11-BJK and BDR-S11-JX are set for release in Japan towards the end of February and require Windows 10, an Intel Kaby Lake i5 or i7 processor and at least 6GB of RAM to enable you to use them.

3 FM's a turn off...

Norway has become the first country in the world to start turning off its FM radio and embrace an all-digital future. The closure of the FM network began in January in Nordland and will proceed region-by-region throughout 2017.

4 Netflix breaks own record

Netflix enjoyed a boost in the value of its stock following the news that it had added a record 7m customers between October and December 2016. This brought the total number of global subscribers to 93m, and the company now expects to surpass the 100m mark by March.

5 Sprint to buy stake in Tidal

Rap star Jay Z is selling a one-third stake in music streaming service Tidal to US mobile operator Sprint in a deal said to be worth around \$200m. The deal will give Sprint's 45m customers access to Tidal, as well as providing the artist-owned service with a massive cash boost as it aims to compete with Apple iTunes and Spotify.

6 BT to charge for Sports

BT TV subscribers have previously been able to watch BT Sport channels for free, but from August 1 they will be charged £3.50 per month, adding £42 to the annual price of their package. BT is also upping standard and Infinity broadband subscription costs this Spring.

7 Rewinding the tape

Nielsen Music has revealed that the sales of tape cassette albums in the US increased 74 per cent year-on-year in 2016. Now, before anybody starts talking about a format revival similar to that of vinyl, it's worth noting that this still only represents a total of 129,000 tapes sold. Which is still 129,000 too many, really.

8 LG cashes in on OLED

Sales of premium OLED and 4K Ultra HD flatscreens have been credited with LG's home entertainment division posting record profits in 2016 of over \$1bn (Q4 revenues alone were up 15.7 per cent year-on-year). The Korean corp will be hoping for more of the same this year as it continues to expand its OLED stable.

9 Curzon lands BAFTA award

BAFTA has honoured Curzon Artificial Eye with an award for Outstanding Contribution to British Cinema. The gong was given in recognition to the work the company continues to do as a cinema chain, a distributor and VOD platform with its Curzon Home Cinema service.

10 On the record(player)

A couple of years ago turntable maker Rega unleashed an officially licensed Queen record deck. Now, rival company Pro-Ject Audio Systems is getting in on the act with its very own George Harrison Essential III turntable. Limited to just 2,500 pieces and priced around €800, it features exclusive artwork by Shepard Fairey and comes with a boxset containing all of Harrison's solo studio albums on 180g vinyl.



Premiere...

What's happening in the world of TV and films...

Warner tackles Titans



Warner Bros. is hoping to secure US remake rights to the hit manga *Attack on Titan*, with David Heyman (*Fantastic Beasts and Where to Find*) lined up to produce. Hajime Isayama's hugely popular comic has already been turned into a live-action film and an animated series in its native Japan.

Animating diversity

Sony Pictures has confirmed that its Spider-Man animated movie (due to hit cinemas in December 2018) will star the Miles Morales incarnation of the character, rather than Peter Parker. Introduced in the comics in 2011, the Black Hispanic Miles is the first mixed-race version of the iconic web-slinger.

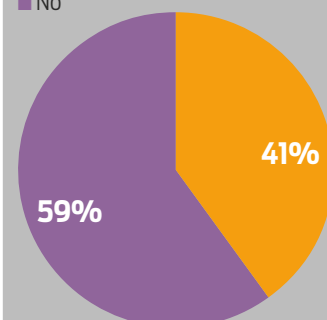
Coens heading to TV

Indie darlings Joel and Ethan Coen are the latest filmmakers to make the move to the small screen. The duo are partnering with Annapurna Television to develop and direct a Western miniseries titled *The Ballad of Buster Scruggs*.

We asked...

Is your home cinema system set up for Dolby Atmos and DTS:X?

Yes
No



Results from www.homecinemachoice.com
Go online for more polling action

Bring the magic home...

Fantastic Beasts and Where to Find Them → Warner Bros. → VOD/DVD/BD/3D/4K

Set decades before the events of the Harry Potter series, this latest piece of cinematic magic from the pen of J.K. Rowling follows 'magizoologist' Newt Scamander (Eddie Redmayne) as he journeys to New York to research and rescue magical creatures. *Fantastic Beasts...* hits DVD, BD, 3D and 4K platters on March 27, with the latter three formats offering a Dolby Atmos soundtrack and plenty of extras. Warner Bros. is also preparing the eight Harry Potter films for 4K Blu-ray release 'later in 2017'.



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Face to Face

Topics of discussion on the HCC Facebook page

On 3D in cinemas...



I still blame poor-quality cinemas for the demise of 3D. I'm a fan and will remain so. The *It Came From Outer Space* Blu-ray really surprised me as to how good 3D was back then and translates so well today – assuming you like a bit of cult sci-fi, of course. If all 3D films used 3D as well as this it would still be on all new TVs! *Stefano Pascuzzi*

While some films don't benefit from the merits of 3D, with others like *Dredd* and *Gravity* it's the default watching experience. *Alex Russell*

What you're watching on your home cinema...



Magnificent Seven on UHD Blu-ray and *The Accountant* in UHD, too. *Amar Dhillon*

The Magnificent Seven – cinema room full! *Steve Old*

Magnificent Seven I watched last week on UHD – it's another Sony stunner. This week: *Urban Legend*; *Resident Evil Retribution 3D*; *House on Haunted Hill* [1999 – the worst commercial UK Blu-ray ever!]; *Resident Evil Afterlife 4K*; *A Good Day to Die Hard* (still naff); *Revenge* (German Theatrical Cut); *Trainspotting* Criterion LaserDisc; *A Life Less Ordinary* BD. *Mike Wadkin*



It's a Danny Boyle theme as *Trainspotting 2* is out. So this week's films are *Shallow Grave*, *Trainspotting* and *Steve Jobs*. *Chris Sayles*

Star Wars: The Clone Wars Season 5. *Jeff Baker*



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Back of the 'net

Trailers, technology and more to check out on the web



Suited and rebooted

Sony/Marvel's standalone *Spider-Man* outing (albeit with a little bit of Iron Man thrown in) hits cinemas on July 7, and there's already a lengthy trailer that suggests it'll be comic book movie business as usual – meaning light-hearted gags, explosive set-pieces and slick CGI.

youtu.be/rk-dFlllbg



Oh, OLED!

Sony has released a short introductory video highlighting the design and performance allure of its new Bravia A1 OLED display. One trick it's particularly proud of is using the whole panel as an 'invisible speaker' and tucking a subwoofer into its rear stand – the stand also doubles as a VESA mount.

youtu.be/7YZxaa75KLEU



Make this movie!

The Superbowl sees plenty of big-budget adverts filling in the gaps in game-time: our favourite this year was from D.I.Y. website corp Wix, which imagined a high-octane action flick starring Gal Gadot and Jason Statham. Utter nonsense, of course, but we'd happily watch a feature-length version.

youtu.be/fmOniWTJRds



Cinema's got the shakes

Movie-centric YouTuber Rossatron has turned his sights on the shaky-cam obsession of modern action flicks, in a 10-minute video essay that takes in the Bourne franchise, Liam Neeson in fighting mode and the choreographed gunplay of John Woo's magnificent *Hard Boiled*.

youtu.be/yfAH4CcFgSQ



Everything's connected

Film geeks have always enjoyed the nods and winks in Pixar movies that hark back to earlier features from the animation studio – now Disney has released a video that uncovers Easter Eggs tying the whole catalogue together. What's lurking in the rubbish dump in *WALL-E*?

<http://tinyurl.com/jsty8gz>



A car-crash idea?

The *Fast & Furious* franchise is breaking out from the screen and into the 'live entertainment arena' according to Universal. We're not quite sure what that means (drift racing at Wembley Stadium?) but it's not happening 'til 2018 so they have time to work it all out. Register your interest at the new website.

www.fastandfuriouslive.com

Utah saints...

Wilson Audio Yvette → www.absolutesounds.com

Wilson Audio suggests its latest floorstanding addition is 'more compact and affordable' than its stablemates, but that still doesn't make the shapely Yvette speaker an impulse buy. Priced at £29,000 a pair, the three-way tower derives bass punch from a 10in driver, sited below 7in midrange and tweeter units in a cabinet engineered for optimum time-alignment. The result is 'the most advanced and musically refined single-enclosure speaker in Wilson Audio's history,' claims the US brand.



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Should you form a Q for Samsung's 2017 TVs...

TV tech detective **John Archer** reports on his first experiences with Samsung's new breed of HDR-optimised displays, before casting his eye over rivals from LG





The new Q series promises reference-level brightness and colour volume

THE TV SECTION of this January's CES in Las Vegas felt like a war zone. It's normal, of course, for rival TV brands to be not exactly the best of friends. But the shots being fired at each other this year carried more venom than at any previous show I've attended – and I've attended a lot.

The reason for this, I suspect, is a combination of good old desperation in an ever-more fraught and fractured TV marketplace, and a new level of hostility between Korean neighbours Samsung and LG, heated up by an apparent desire on Samsung's part to torpedo LG's increasingly successful OLED TV business.

Of course, Samsung couldn't very well have come out all guns blazing at CES if it didn't think it had the weapons to win the war. Which is where a little something Samsung calls QLED comes in.

The first thing to say about QLED is that it replaces Samsung's previous 'SUHD' sub-branding. This is significant in itself, as the SUHD term was an

'Samsung couldn't have come out all guns blazing at CES 2017 if it didn't think it had the weapons to win the TV war'

attempt – arguably more marketing than reality – by Samsung to create the idea among consumers that it had invented a whole new category of television. So Samsung clearly wants to signal with the move to QLED that it's done the very same thing again.

There is, though, a key difference between QLED and SUHD, in that Samsung hasn't sought to trademark the QLED term. Essentially anyone can use the acronym when they're talking about the use of Quantum Dot technology (which I'll come back to later) in LCD TVs. As a result, even at CES I saw a Far Eastern TV brand – Konka – proudly proclaiming that it had an 'HQLED' TV for 2017, although my strong suspicion is that this set will fall far short of the performance of Samsung's QLED models.

It would seem that Samsung has taken the somewhat risky decision not to 'own' the QLED term as part of a desire to counter the apparent reach of the OLED technology name. Only time will tell how that strategy plays out.

Emission admission

As for Samsung's take on QLED technology, its 2017 TVs are not actually the first time the brand has used Quantum Dots in its screens. It's also important to

state that Samsung is not using the QLED term to describe any sort of self-emissive LCD technology, where each pixel creates its own light; important because the QLED term has previously been used to describe such futuristic tech. Samsung's QLED TVs announced to date all use external LCD light systems. In fact, all three ranges promised use edge LED lighting. If there's a full-array model coming in 2017, we don't know about it yet.

There is, though, a key difference in the way its 2017 panels use this illumination. While LCD TVs traditionally only fire light in one direction, the characteristics of Samsung's new Quantum Dot technology means it can be combined with light deflected into multiple path. This means – as was borne out in demonstrations at CES – that the TVs no longer have to suffer with their usual very limited effective viewing angles. In fact, my closed-door demos suggested that Samsung's new displays hold on to colour and contrast better than 2016 OLED TVs, despite OLED previously always enjoying a clear viewing angle advantage. Anyone who has a cinema room with off-angled seating should take notice.

Filtering colour

Quantum Dot technology essentially creates colour by firing blue LED light at an array of nanotech particles that use different sizes and wavelengths to produce different colours. This approach enables the production of wider colour ranges and punchier tones than you can get with traditional LCD colour filtering.

Naturally, Samsung believes its Quantum Dots are better than anyone else's Quantum Dots, based upon a change in design. The main advance is that the Korean brand has introduced a Cadmium-free metal alloy into both the cores and the shells of its latest Quantum Dots, counteracting susceptibility to air exposure, and enabling them to adopt a different position in the LCD TV structure. The metal alloy QDs can be driven harder and more efficiently than 'standard' versions, I'm told, and can also produce more accurate colour performance.

So hard can Samsung's latest Quantum Dots be pushed, in fact, that the company is claiming brightness levels as high as 2,000 nits for its 2017 sets – the highest ever seen on a 'domestic' TV.

Brightness in itself is not the only thing that matters to TV performance, so Samsung also argues persuasively that brightness when allied with the colour performance of its latest Quantum Dots delivers something that really is vital to picture quality: colour volume. This is basically what you get when you add luminance (brightness) to the

Samsung ran a QLED vs OLED demonstration behind closed doors at CES 2017

QLED choices

Three ranges of next-gen LED TV are on the way

Q9F

Samsung's top-of-the-pile QLED set has a surprise – it's a flatscreen. Previously, the brand's flagships have used curved panels, so this is a change of tack. Available sizes currently confirmed are 65in and 88in, meaning Samsung is following other TV manufacturers in making its premium tech unavailable to those shopping for 55in models.

Q8C



A fan of the curve? Then Samsung hasn't forgotten you. The Q8C series is another premium range, though doesn't share the exact same specification as the Q9F models. Sizes are more accommodating though, with 75in, 65in and 55in versions announced so far.

Q7

A further QLED range will target those on tighter budgets, although details remain sparse when it comes to sizing. We expect the Q7 line to offer both flat and curved variants, though.

QLED was the main event at Samsung's CES press conference in January



two-dimensional way of measuring colour the AV world has traditionally relied upon – and it's important because it's more representative of the way our eyes perceive colour in the natural world. This chimes perfectly with HDR's desire to bring us images on our screens that look more life-like.

Samsung loves pointing out that manufacturing limitations inherent to current OLED technology make it all but impossible for OLED panels to hit the same sort of brightness levels that LCD TVs can reach, and so cannot deliver the same sense of colour volume. It also suggests that the use of a white sub-pixel in current OLED TVs would lead to colours becoming washed out if you added more brightness to them (although some industry insiders I've spoken to dispute this).

However on board you might be with embracing the importance of brightness in a TV picture, though, a long-held belief that black level and contrast are fundamental to an immersive image is hard to shake. Here again, though, Samsung claims its QLED TVs have got your back. As well as enabling the different approach to back-lighting described earlier that's beneficial with viewing angles, the extra efficiency of its Quantum Dots means Samsung's QLED TVs are equipped with three layers of light filter. These are designed to limit the unwanted impact on picture quality of light in your room. The brand claims it has achieved 'industry-leading' low levels.

Step-up series

Samsung is talking a mighty good game with its new QLED sets. And the demonstrations I had of them



working suggest they could indeed be large improvements over what's come before.

Colours witnessed on the Q8 and Q9 QLED series (which will be joined by a more affordable Q7 range) looked superb, exploding off the screen with intensity and, crucially, a sense of naturalism. Those 1,500-2,000 nits of brightness seem to be harnessed to the idea of making colours and light levels look more 'real', and the enhanced colour volume is joined by detail in dark areas and an open and balanced approach to contrast.

We're yet to see a QLED TV in a blacked-out room, although it seemed from the demonstrations they were delivering exceptional black levels for an LCD screen, and dark scenes were affected little by onscreen reflections. Pair these seemingly good first-look black levels with QLED's expansive brightness and colour volume and you've got images that could be tailor-made for a premium HDR performance. As always, judgements are reserved until we can torture the sets with specific footage in real-world conditions.

And the elephant in the room is that while Samsung's QLED TVs are heavily focused on HDR, they're not interested in Dolby Vision. They currently only handle the HDR 10 format, plus the HLG variant set to become a factor in the HDR broadcasting space. And while Sony has pledged to firmware update last year's ZD9 TV to support Dolby Vision, Samsung doesn't seem interested.

The first finished QLED TVs are set to arrive towards the end of February or early March in the UK, although pricing remained unconfirmed at the time of writing.



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... or embrace LG's Nano Cells?

EVEN BEFORE JANUARY'S CES started, LG was trying to take the wind out of Samsung's QLED sails. Clearly aware that Samsung was going big on its new Quantum Dot technology, LG gleefully announced in a pre-CES release a new LCD technology of its own. And one that allegedly outperforms QLED – at least in some areas.

Set to feature in all three SJ9500, SJ8500 and SJ7500 ranges of its 2017 'Super UHD' LCD TVs, LG's Nano Cell technology is actually similar to Quantum Dot to the extent that it's based around tiny particles. However, Nano Cell differs from Quantum Dot in that all of its 'dots' are uniform in size – one nanometre wide – rather than making use of different sizes to emit different wavelengths.

This size uniformity, LG claims, enables its TVs to deliver deeper blacks and more subtle and accurate colours than it's been able to achieve in the past.

Unlike Quantum Dot screens, Nano Cell TVs still use colour filters in the manner of traditional LCD TVs. However, a combination of organic polarisers and the apparent ability of nano cells to soak up surplus light wavelengths – including those created by specific colours – is claimed to contribute to a much better colour performance. This ability to soak up 'stray' colour should, for instance, see LG's 2017 Super UHD TVs avoiding the off-kilter green tones sometimes seen on LCD TVs, caused by pollution from yellow and blue wavelengths.

LG has placed the nano cell particles in its new TVs within a film that sits relatively far forward in the LCD panel design. This, LG says, helps its new TVs enjoy a wider effective viewing angle than other LCD types – including Quantum Dot models.

Walking tour

Strolling around a 55SJ9500 at CES certainly suggests that Nano Cell TVs can be watched with minimal disruption to colour or contrast from up to around 60 degrees off-axis. Before you get too excited by this, though, Samsung's QLEDs rewrite the VA panel viewing angle rulebook, looking as if they at least rival and potentially outgun LG's IPS-based designs in this respect.

Despite this caveat, I was still quietly impressed during the time spent with a 55SJ9500. Colours, in particular, looked better than anything seen from LG before, combining richness and vibrancy with more

tonal subtlety and, most striking of all, a much more natural and refined look.

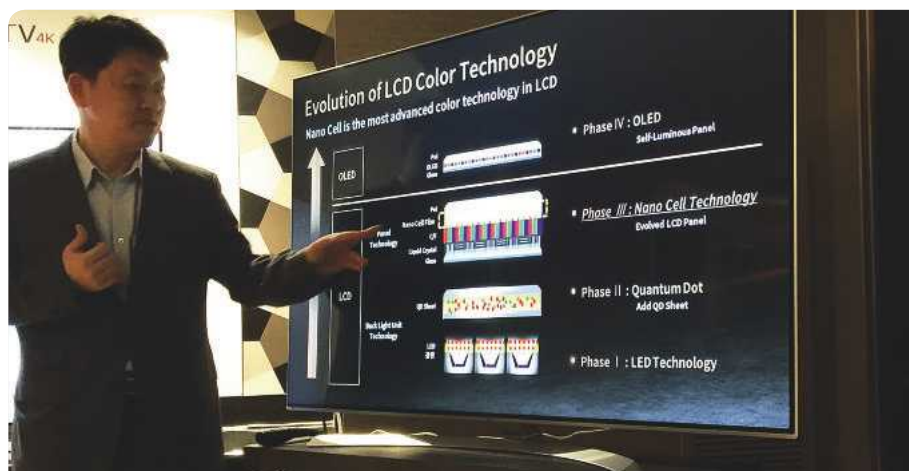
The Nano Cell screen seemed markedly brighter than previous Super UHD sets, while Ultra HD images had an enhanced detail and crispness, perhaps because of the greater colour precision.

LG isn't pushing the brightness of its Nano Cell TVs anywhere near as high as Samsung is doing with its QLED models; it's targeting 1,000 nits versus Samsung's 1,500–2,000 ambitions. This could potentially limit their effectiveness with at least some HDR sources, but not to a deal-breaking extent if LG prices its new TVs sensibly. Previously, its Super UHD range has always undercut rival marquee LCD lineups – OLED is LG's premium proposition.

Another potential problem is a familiar one for IPS LCD TVs: black level response. Even in the CES hotel room I could see evidence of greyness over parts of the picture that really should look black. That said, the greyness wasn't as pronounced as I might have expected, and may well be better disguised in a typical viewing environment by the colour and brightness improvements evident elsewhere.

From this early taster of LG's Nano Cell tech, it's clear it has the potential to be a force in the relatively mainstream LCD arena. Features will come into play here too: support for HDR 10, Hybrid Log-Gamma and Dolby Vision is joined by a tweaked WebOS interface and image preset tuned by the boffins at Technicolor. These sets appear fully-loaded – now we just have to wait to get our hands on one ■

LG is positioning Nano Cell as an improvement on Quantum Dot, but below top-tier OLED tech



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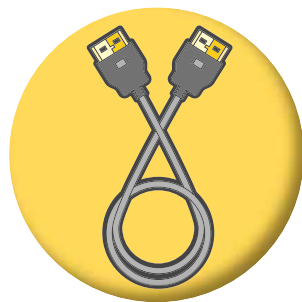
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HDMI 2.1

GETTING READY FOR 8K TV AND MORE



The next generation of HDMI will be a game-changer when it comes to UHD picture quality, says **Steve May**. But there's no need for HDMI envy just yet...

A ROUND OF applause, please, for version 2.1 of the HDMI specification. This laboratory-fresh update to your favourite AV connector, announced at the start of the year, promises stupidly high-res video and a raft of exciting new features, ensuring we'll all be using HDMI as our go-to AV cable for at least another decade.

With an all-new specification, though, come all-new questions, so let's break HDMI 2.1 down into bite-sized chunks.

Okay. What's so different about this version of HDMI?

This really is the Kong of cables. HDMI 2.1 supports better-than-4K video resolution and very high frame rates (HFR). It'll handle 7,680 x 4,320-resolution video (four times the pixel density of 4K) at 60Hz/fps and 4K-resolution content at 120Hz. Dynamic HDR? Easy-peasy, whatever your preferred flavour. If you're planning on watching 8K coverage of the Tokyo 2020 Olympics on the world's most advanced TV screen (so futuristic in fact, we don't yet know what it will be), with a make-believe 8K satellite receiver, then it's a dead certainty that you'll be making use of HDMI 2.1, and a new 48G cable (the initial name, which may change).

I thought all HDMI cables were the same...

Far from it. Only a 48G cable has the speed to handle 8K video with HDR. Nothing else will do the job.

Why is it called 48G?

That name relates to bandwidth – HDMI 2.1 supports data rates up to 48Gbps. Today's HDMI 2.0 spec reaches a slothful 18Gbps in comparison, and bog-standard HDMI 1.4 positively meanders at just 10.2 Gbps.

So my existing HDMI cables will have to go?

Yes, eventually. This is entirely new. The connector and the plug remain unchanged, so physically, they look exactly the same, but there's no upgrade path. Of course, a 48G HDMI cable will be completely backwards compatible with existing HDMI hardware.

VR hardware is tipped to embrace 8K resolution in pursuit of a greater sense of user immersion



HDMI 2.1: speed demon

The new specifications at a glance...



Bandwidth

The HDMI Forum is thinking big with its new standard, catering for 48Gbps transmission, which, as the graphic above shows, is a huge leap ahead of the current specification. The ability to push more data 'down the pipe' enables hitherto unseen combinations of image resolution, frame rates and colour depth.

Resolution

HDMI 2.0 was designed for the 4K era – HDMI 2.1 has been cooked up for 8K and even 10K video. Gaming and broadcast industries are the likely avenues. 8K Blu-ray? Don't gamble on it.

Frame rates

Going hand in hand with higher resolutions are higher frame rates (120fps is a target of the DVB's UHD-1 Phase 2 spec). HDMI 2.1 supports 60fps and 120fps in 4K/5K/8K/10K flavours.

Audio

New to HDMI is eARC (Enhanced Audio Return Channel), which adds transmission of 3D sound formats. 'Consumers that want to enhance their UHD viewing will now have access to the most advanced audio formats through a simple-to-setup HDMI-enabled soundbar,' brags the HDMI Forum.

Does this all mean my new 4K TV is already obsolete?

No, because your new TV isn't HFR or 8K capable. And even if 8K video gushed forth from the nipples of Netflix tomorrow (don't worry, it won't), your current 4K TV would not be able to do much with it. Similarly, don't expect this year's incoming crop of Ultra HD TVs to have an HDMI 2.1 input either, for that very reason. It would be a pointless expense.

Of course, if Samsung really wanted to win brownie points it could theoretically produce a new One Connect junction box for existing Samsung TV owners with HDMI 2.1 at some point. However, mating an 8K source with a 4K UHD panel doesn't really get anyone anywhere. When it comes to displays, we're talking about a whole new ecosystem to take advantage of the feature set.

Okay, got it. HDMI 2.1 is all about 8K video. It's the future. Does it benefit anything else?

Actually, it does. This new high-speed interconnect could prove to be big news for Virtual Reality. VR developers are hungry for high-resolution, high frame rate video. Even the best VR headsets today, like the HTC Vive, are relatively low resolution. VR isn't about static linear content, it's a dynamic, real-time experience, so 8K resolution or ultra-fast 120fps frame rates could help transform the experience into something altogether more realistic and immersive.

HDMI 2.1 also has industrial implications. When any new high-bandwidth solution comes along there's a commercial use waiting – think healthcare, aviation, enterprise. And these industries want 8K sooner rather than later. In the world of digital signage, for example, 8K displays are not uncommon. There are already creative professionals using 8K today, from video editors to graphic artists.

Does the new HDMI spec offer anything exciting for 3D audio?

Yes. HDMI 2.1 will usher in eARC, an update on the everyday Audio Return Channel (ARC) functionality that we use to route sound from a TV back into a soundbar or AV receiver. eARC builds in support for object-based audio formats such as Dolby Atmos, as well as advanced audio signal control capabilities, such as Device Auto-Detect.

Hold on, where does that leave my AV receiver? I thought 4K/60 and HDCP 2.2 was all I needed?

Well, current AVRs certainly won't be able to handle 8K video. Practically speaking, any AVR you buy today isn't going to have a short shelf life; the idea of an 8K or HFR source component is still many moons away. But make no mistake, the AVR market is on course for a major shake-up with HDMI 2.1.

Surely my PS4 Pro or Xbox One S can be upgraded to HDMI 2.1?

Realistically, no. Of course, upgradability is ultimately a hardware design choice. If a manufacturer designs something to be upgradable from the get-go, then it technically may be possible, but we wouldn't

anticipate that happening. Today's game consoles are not intended to be devices with infinite lifespans. It remains to be seen if there's even any performance benefit to be had by adding HDMI 2.1 to the forthcoming Xbox Project Scorpio.

The PC gaming world is a more likely beneficiary, as graphics cards and processing power increase to the point where resolutions higher than 4K become desirable. PCs are relentlessly upgradable, and monitor companies will begin shipping 8K PC displays later this year. It's not just the resolution potential of HDMI 2.1 that's attractive. The new spec also includes Game Mode VRR, which works to eliminate image lag, stutter and frame tearing – the speed of HDMI 2.1 enables frames to be transmitted and displayed as soon as they're rendered.

Is there anything HDMI 2.1 could be used for in terms of hi-res audio?

Hi-fi brands remain reluctant to embrace HDMI for audio-only sources, despite improvements to the standard and the simplification it would bring to system hookups, including CEC. Will we see it used in anything other than soundbars and AVRs? That'll be up to some of the more visionary members of the hi-fi community.

When can I expect to see 48G cables or HDMI 2.1 kit appear?

You can't buy a 48G cable just yet. It's likely that first samples will be produced later this year. As for hardware, the earliest TVs we anticipate sporting the standard will be 8K panels by Hisense and ChangHong, but these are destined to be for local Chinese consumption only.

Keep an eye on AV receiver makers. They more than most will feel an imperative to fast-track HDMI 2.1 into models sooner rather than later... ■





SOUND, ALL AROUND...

Dolby Atmos has gone from a twinkle in a sound engineer's eye to a must-have home cinema feature in just five years, and it's widening its appeal. **Mark Craven** is in a celebratory mood



IN AN ISSUE of HCC five years ago, we tasked Steve May with imagining what technology and concepts would be making a name for themselves in home AV in 2017. Ultra HD and OLED were naturally tipped to develop. That Dolby Atmos wasn't even mentioned, though, is testament to just how quickly the object-based audio format has found favour in our living rooms and picture palaces. At the beginning of 2012, Dolby Atmos didn't exist.

Back then, the audio powerhouse (publicly at least) was still focused on Dolby Surround 7.1. A trawl of the archives finds Dolby promoting the releases of movies such as *Mission: Impossible – Ghost Protocol*, and the Chemical Brothers concert film *Don't Think*, in its extended but still resolutely channel-based format. And remember that this itself had only debuted in 2010 with Pixar's *Toy Story 3*.

Then came April 23, 2012, where under the seemingly hyperbolic headline 'Dolby Atmos is the future of Entertainment Sound,' the company revealed a new sonic invention. Dolby Atmos rolled out to a happy few multiplexes just a few weeks later with another Pixar title – *Brave*. The remarkable rise of Atmos had begun.

2017, and you can't move for Dolby Atmos. Certainly if you're a signed-up member of Club Home Cinema, but even on a wider, mass-market consumer tech level, it's become increasingly prevalent. Consider the evidence: last month, BT added Dolby Atmos audio to its Ultra HD football transmissions; console games are sporting Atmos mixes; even TVs, from LG, are coming with Atmos capabilities in-built. It's not reached the level of pub debate, of course, but it'd be difficult to argue that it hasn't been successful.

What's the secret of its success, though? And what to consider if you've yet to upgrade your system to support it? To start with, a quick recap.

Object of your affection

Dolby Atmos differs from the company's predecessor formats in its employment of sound objects.

Whereas a film used to be mixed and encoded in, for instance, 5.1, with audio tied to specific channels, it's now produced, simply, in Dolby Atmos. Thinking in terms of channels is out; thinking in terms of objects (dialogue, a car engine, a bass drum...) is in. Sound designers decide where objects (up to a total of 118) sit and move within a hemispherical soundfield. Dolby's processor hardware then disentangles the metadata to map the object-based soundtrack to a speaker array. In a commercial cinema, such a system could include dozens of speakers. Dolby's own screening theatre in London's Soho Square employs 36.

It's easy to see why Atmos has gained traction with content creators. It provides for greater flexibility and precision for effects steering, and – with height speakers a key part of the package – adds three-dimensionality. Want a helicopter to land on your audience? No problem.

I visited Dolby back in the Summer of 2014. There, company 'Evangelist' Jonathan Jowitt enthused about the impact the format had had in just a couple of years. 'It's the most successful cinema technology

we've had,' he told me. More than 120 films with Atmos soundmixes had been released by then into 650 cinemas – of the latter, there are now four times as many worldwide.

'Feedback from cinemagoers has been brilliant,' said Jowitt at the time. 'They talk about being immersed in the action.' The next step was to bring that immersion into the home.

A format for all

Dolby Atmos at your multiplex and in your home are two different beasts. They have to be. Put it bluntly, you can't afford the speaker rig and hardware stack to do justice to all those sound objects.

Yet Dolby wanted to get more mileage out of its new toy, and studios wanted to make the most of those new mixes that adorned their films, so a solution was engineered. Dolby prepped a scalable algorithm and introduced spatial decoding, allowing its existing Dolby TrueHD (and Dolby Digital Plus) codecs to carry Dolby Atmos information. Fed into

'At the beginning of 2012, Dolby Atmos didn't even exist – five years on and you can't move for the object-based format'

Dolby Atmos-decoding hardware (an AV receiver or processor), the bitstream audio is then mapped to the speaker array of the setup. For the home, Dolby says such a system could include as many as 24 surround speakers and ten overheads.

Such approach is only usually to be found in the custom install world, where fitting speakers in ceilings, with extended arrays, was already commonplace. Guy Singleton, of award-winning UK installer company Imagine This, reports that Atmos is now a key part of his business. 'Auro-3D really started the immersive audio ball rolling, and the financial/engineering might of Dolby took it to the next level. In essence all of our designs now start with an Atmos room. The real challenges have been the larger channel counts. Dolby has various guidelines on small to medium-sized rooms but when you are involved in 32-channel systems its guidelines seem a little more vague...'

Unsurprisingly, the AV industry has mostly settled on more manageable home setups, using >



Pixar's *Brave*: Dolby's Atmos debut

Speak up!

Dolby's rules for overhead Atmos speaker placement

'The dimension of height – hearing sounds coming from above you – is key to the Dolby Atmos experience,' says the company, so follow its guidelines on placement if possible. For genuine overhead speakers (mounted on or in-ceiling), aim for a height of between two and three times the height of your base-level speakers. So if your surrounds are at the ITU-R BS.1116-1 recommended height of 1.2m, your overheads should be between 2.4m and 3.6m. And where should they go? If you're going for four, try to place them at an elevation of 45 degrees (or at least between 30 and 55 degrees) from your listening position – front and behind. If you're opting for two, then aim for a more directly overhead position of 80 degrees (or between 60 and 100). And they should be in line with your front left/right speakers width-wise.

Bouncing around

As for upfiring speakers, placement guidelines are different. Dolby says that where four are to be used, they should be at the position of the front left/right speakers and the rear back speakers – or the surrounds if rear backs aren't used. If that's not possible, aim to locate them within 3ft of those speakers. They should also be the same distance away from the listening position to ensure you're hearing the reflected sound, and not the original output.

For systems using only two upfiring, place these with the front left/right pair.

There's a little more flexibility on ceiling height, with a range of between 2.3m and 4.3m suggested, although 2.3m–3.66m is given as the optimum.

'Dolby Atmos enabled speakers should be mounted so that the driver is facing toward the ceiling,' it adds, helpfully.

two or four overhead speakers atop a traditional five- or seven-channel base layer. And it's this downscaled Atmos (literally) that has captured the imagination of home enthusiasts. All that's needed to enjoy it is a capable AV receiver and either overhead speakers or Dolby Atmos-enabled upfiring.

The latter have been Dolby's secret weapon – a quick retort to the obvious cry of 'I can't attach speakers to my ceiling!'. Again, I first heard a set in 2014 at Dolby's HQ, in this case KEF prototypes that would eventually evolve into its R50 models. Differences in demonstrations between upfiring and overheads were at times hard to discern, and in the real-world, where you're unlikely to be able to play spot the difference, upfiring have proved good enough to make a real impact, using angled drivers and a Dolby-described notch filter to replicate the characteristics of overhead audio. And they're designed to slot into a current setup as discreetly as possible. If your system environment precludes fitting ceiling speakers, these are your friend.

The market, however, does remain small. KEF's R50s joined Onkyo's affordable SKH-410s, and buying options have since been bolstered by models from PSB and ELAC, plus integrated floorstanders from Definitive Technology and Pioneer. Yet marquee brands, including the likes of Bowers & Wilkins and Monitor Audio, have given them a wide berth.

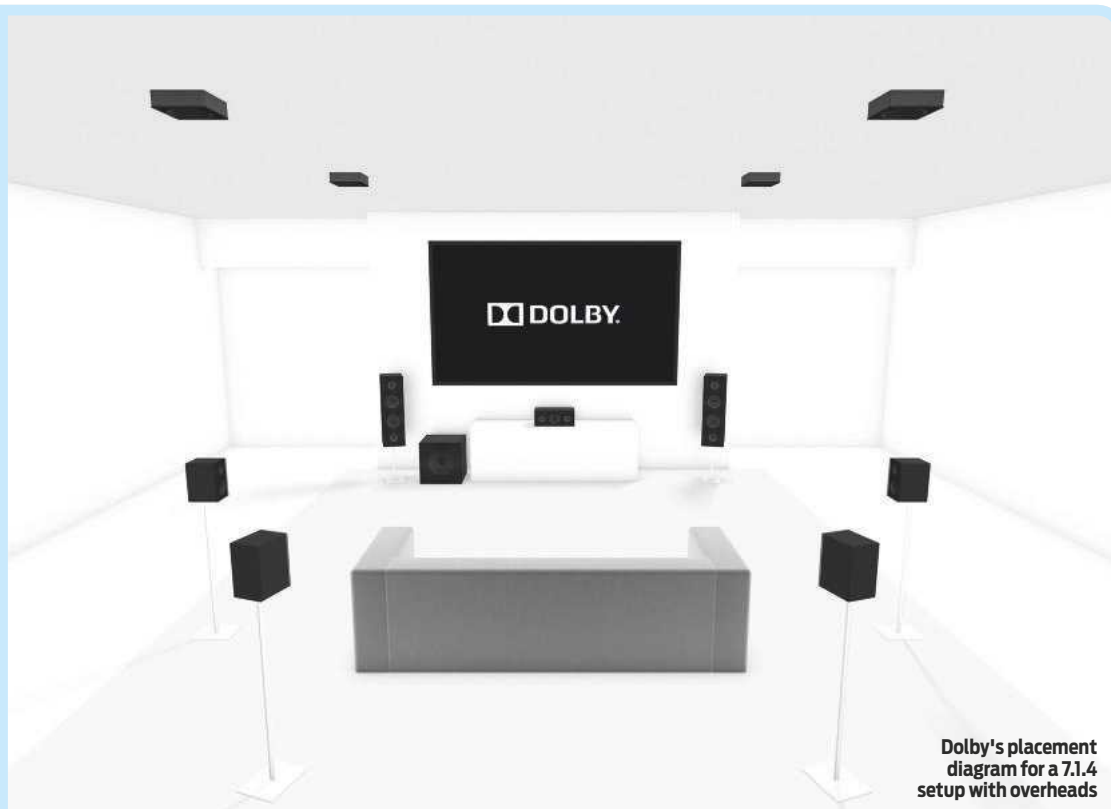
For physical ceiling speakers, there's a larger range to choose from. Go in-ceiling and you'll find prices are tempting, as there's no cabinet to factor into the equation. However, this requires an installation that involves altering your ceiling. A less sleek and more expensive option is to fit traditional loudspeakers up high, perhaps going for a shallow cabinet to minimise aesthetic disruption. In both

instances, look for speakers that claim a wide dispersion and – if possible – are timbre-matched to your existing setup.

When it comes to AV receivers the world is your object-based oyster. It's increasingly difficult to find any AV receiver above around £450 that doesn't decode Dolby Atmos. Shop with brands Onkyo, Denon, Yamaha, Marantz, Pioneer, Arcam and Anthem and you're in safe hands.

There are factors to consider when it comes to upgrading to Atmos, of course. The soundstage sounds at its best when four overhead/upfiring are employed, as this gives greater emphasis and fluidity to the height elements that sound engineers regularly employ. At the same time, your setup also sounds at its best with rear back channels (numbers 6 and 7, if you like, in a 7.1 array) in play. This obviously equates to a system that needs 11 channels of power, which limits AVR choice considerably, or has you hunting around for another stereo amp. Choose nine-channel hardware and you're faced with another choice – four up top and lose the rear backs, or maintain 7.1 with only two height speakers. HCC's suggestion would be to stick with whatever system you've been employing pre-Atmos, and add just two heights if budget/room/available kit limits you to that. Those running 5.1 should perhaps go straight for 5.1.4 – there's no doubt a reason that rear backs haven't been added already.

And, as always with audio, setup and EQ is important. Stick as close as you can to Dolby's guidelines (see left), run your AVR's auto-calibration routine and listen critically – Dolby's short trailers available on its demo disc (particularly *Leaf*) are good tools for evaluation, particularly if you want to move the position of upfiring.



Dolby's placement diagram for a 7.1.4 setup with overheads

Discs of delight: Essential Atmos platters



Gravity: Special Edition

A double-dip release that was worth it, as it replaced the original DTS-HD 5.1 mix with an Atmos track (the film scooped awards for its sound design and was released in cinemas in Atmos). The result is remarkable, particularly when it comes to the circular pans and localised dialogue that are peppered around the hemispherical soundstage. Sound (or lack of it) is a vital component of *Gravity* – get the best reproduction you can.



Jupiter Ascending

The Wachowski siblings' bonkers fantasy sci-fi starring Mila Kunis and Channing Tatum packs an expansive, dynamic Dolby Atmos mix to take your mind off the onscreen CG lunacy, especially when it comes to pushing Michael Giacchino's score right up into the rafters and down again. It's akin to being thrust headfirst into an orchestra.



Blair Witch

Last year's sequel may still go low-fi on the found-footage visuals, but its Atmos soundtrack is pristine. The main job it's given here is to terrify the audience, and through cleverly localised effects and spooky atmospherics it succeeds in spades once the night-time horror commences. A fine example of how to create hair-raising tension through inventive sound design. Dollops of LFE help, too.



Mad Max: Fury Road

The throaty roars of various overhauled car engines are a near constant in George Miller's outback dystopia, and on Warner's Blu-ray they snarl and thrust through your cinema room practically flicking sand in your face. But there's more to this demo-worthy Atmos track than just petrol-head chaos – quieter moments are still packed with attention to detail.



Transformers: Age of Extinction

Surround sound subtlety isn't the order of the day in this battle-bot sequel – audio engineer Erik Aadahl was clearly given instruction to push everything to the max and make full use of the Atmos play-pen. The result is full-bodied overhead effects that create a massive sense of scale, with metallic objects clanking all around, sharp and heavy and backed up by bruising bass. Breathtaking from start to finish.



Everest

What's there to hear on top of the world? In this case, ice-cold winds whipping all around you, bassy cracks as layers of ice rip apart, Dario Marianelli's haunting, dramatic score and the desperate breaths of courageous climbers. *Everest's* Blu-ray and UHD Blu-ray releases pack all this into an Atmos mix that oozes clarity, depth and dynamism.



Lucy (4K)

Scarlett Johansson's action-fuelled sci-fi enjoyed a superb UHD release in 2016, with a new Dolby Atmos mix coming as a welcome bonus after the initial Blu-ray outing shipped with DTS-HD MA 5.1. Visually, *Lucy* is a film that zips and glides all over the place, and the soundmix follows its lead, placing you amidst a soundfield that extends in all directions – and that includes the thumping score. A playful, home cinema head-turner.



John Wick

Bang, bang. Slice, dice. Punch, kick. This Keanu Reeves vehicle (a sequel now in cinemas) offers some of the most brutally visceral sound effects work we can remember, and the Blu-ray's Atmos track works tirelessly to give these details a place in the soundstage and gut-wrenching impact. It's lean, mean and precise, rather like its titular hero.



The Fifth Element

Released in 2015 by Sony Pictures as a Mastered in 4K edition (but still Full HD resolution), this is a region A-locked US platter that's worth importing if your system supports it, as it upgrades the already reference-grade soundmix to Dolby Atmos with predictably joyous results. Note, though, that a genuine UHD release is scheduled to launch this Summer, which we imagine will carry the same track.

Dolby Atmos now comes in soundbar as well as AVR packages...



You may find you prefer to run the Atmos channels a little 'hot' to get greater height impact. It's a matter of personal taste.

Not running a traditional AV setup? Atmos is being aimed at you, too. The massive soundbar market has seen brands innovating with upfiring units to deliver 3D audio from more living-room friendly enclosures. Our current favourites, though, are pricey – Yamaha's £1,500 YSP-5600 that employs 44 separate beam drivers in a single unit,

'We've found ourselves sitting through absolute clunkers, just to enjoy the Atmos sound design'

and Samsung's £1,300 HW-K950 that adds wireless rears speakers to its soundbar. We'll be looking at more affordable options from Philips and Onkyo in the future.

Give us more movies!

Dolby Atmos in home cinemas would be almost pointless without software (I say 'almost', as Dolby Surround upmixing, which remaps regular film soundtracks to your Atmos array, can be effective). Thankfully, studio support for the format has been reasonably strong, growing from a small slate of early releases to a wider selection that includes plenty of cinema's box office big hitters. Yet some studios are still turning a blind eye (or ear), or using Atmos exclusively with 4K discs.

At first we kept a keen eye out for Atmos titles (which began with *Transformers: Age of Extinction* in 2014), but now we're more likely to notice if a major title is shipped with a traditional 'flat' mix when it had an Atmos soundtrack for its commercial release. To date, this situation still arises with all Disney Blu-ray releases – *The Jungle Book* and *Star Wars: The Force Awakens* are two notable 2016 discs that featured DTS-HD MA.

And then there are both Sony Pictures and Twentieth Century Fox – the former has taken to issuing Ultra HD Blu-ray releases that see Atmos accompanying the 4K feature but stick with a flat mix for the 1080p title (*Concussion*, *Inferno*



and *The Magnificent Seven* are recent examples). Fox has been even more hit and miss, releasing *The Revenant* and *Deadpool* with DTS-HD soundtracks (despite being released in Atmos in cinemas) on all Blu-ray variants, but including an Atmos encode on its 4K release of *The Peanuts Movie*. Essentially, if you're buying discs with Atmos in mind, it pays to research before you add a title to your shopping basket.

When does Atmos work well? Pretty much all the time, really. Movies such as *Mad Max: Fury Road*, *Gravity* and *Transformers: Age of Extinction* are obvious flag-bearers for the format, courtesy of their show-stopping set-pieces and overhead antics. Yet we've also been dazzled more recently by lower-budget titles making effective use of 3D sound design, particularly horror titles *Blair Witch* and *The Conjuring 2*. And we've even found ourselves sitting through absolute clunkers (*The Gunman*, for instance), still being tickled by the audio invention.

Reaping the rewards

In five years from now, Dolby Atmos will no doubt still be here. Too much time, money and sonic know-how has been invested for the tech to be thrown away, and everyone from sound designers to film enthusiasts are reaping the rewards.

You can expect to see it expanding its user base as more soundbars, TVs and set-top boxes carry the decoding silicon, and more content creators, including game studios and streaming giants, get involved. And you can expect it to remain a staple of theatrical releases, particularly with Dolby pushing its Atmos+HDR Dolby Vision format.

And when it comes to home cinema, we can hope that eventually Disney and Fox alter their strategies, to the point where Atmos mixes on major BD releases are a given. If that happens, then Dolby would be justified in calling its format the 'Future of Entertainment Sound' ■

DTS:X – rival for your room

3D audio, different flavour



DTS:X is another object-based sound format, launched a year after Dolby Atmos arrived in home cinemas and broadly similar in ethos (although it enables content creators to 'mix once' for both 3D audio-enabled and traditional theatres).

Studio support for DTS:X, both theatrically and domestically, hasn't been as widespread as with Dolby Atmos, but Blu-ray titles that feature DTS:X mixes include *Crimson Peak* and *Jason Bourne*, and Universal, Lionsgate and Fox have added it to some of their 4K releases too, with Warner set to join in later this year – so if you consider your home cinema to be up-to-speed, you need an AVR/processor with DTS:X decoding. This applies to most recently released hardware, although some early Atmos AVRs don't support DTS:X and can't be firmware enabled.

Note that DTS:X issues no recommended guidelines on speaker placement, so you can play out DTS:X mixes through your existing Dolby Atmos setup.

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Atmos snug for a gaming guru

This bespoke 4K PJ/3D audio media room is designed for a film and TV fan with a passion for console game thrills



KIT CHECKLIST

SONY: VPL-VW520ES 4K projector with HDR support

SCREEN RESEARCH: 120in fixed 2.35:1 screen with motorised side-masking (ELIC-120-240)

KALEIDESCAPE: Strato 4K movie server

TRIAD: 3 x InWall Bronze/4 LCR; 8 x InWall Bronze/4 satellites; 2 x InWall Bronze subwoofers; 2 x RackAmp 350 amplifiers

AMAZON: Fire TV 4K media streamer

INTEGRA: DTR-70.6 AV receiver (7.1.4); DBS-30.3 Blu-ray player

SKY: Sky+HD set-top box

LUTRON: Motorised blackout blinds; lighting control

LEAF: HDMI extender kit (4K)

CONTROL4: HC800 processor; SR260 remote



WHILE FOR SOME a living room can easily double up as a home cinema, others crave a private space where they can get away from it all and settle into the serious business of watching movies. And, in this case, blasting aliens, thrashing cars and pretending to be Lionel Messi.

The owner of this custom-designed media den is a console game junkie. So much so that installer Cyberhomes has integrated a wire-ready cubby hole into the front wall, enabling him to swap in games machines as and when he wants.

Projection selection

Once his trigger-finger is worn out, other sources deliver movie and TV content to the 120in projector screen via a Sony 4K HDR projector (the VPL-VW520ES), with automated masking for switching aspect ratios. A Kaleidescape Strato and Amazon Fire TV provide Ultra HD material, and are joined by Sky+HD and Blu-ray-playing hardware.

Audio is Dolby Atmos flavoured, with a full 7.2.4 system fitted discreetly in-wall and in-ceiling, using speakers and subwoofers from Triad, plus processing and power from Triad and Integra. ➤

A. Plug and play

As the owner has multiple games consoles, the raised base of the screen wall features a dedicated space to house them. Bigscreen gaming made easy!

B. Shhhhhhh!

To limit sound leakage from the cinema to the rooms above, Cyberhomes reinforced the ceiling with three layers of plasterboard

C. 4K on demand

Ultra HD PJs are a typical sight in the pro-install world. The model here is Sony's VPL-VW520ES, which was the brand's first PJ to also add HDR 10 support – such content can be fed in from Kaleidescape's Movie Store



A purpose-built timber frame around the room houses absorbing and diffusing acoustic treatments, finished off with a suede-style (and acoustically-transparent) fabric. Even the ceiling (which hides three layers of plasterboard to stop the sounds of *Call of Duty* annoying those in the rooms above) is dressed to match.

The lucky owner describes the room as a 'gaming heaven with astonishing sound and visuals.' We'd happily challenge him to a *Dirt Rally* time trial... ■

D. Behind the mask

Automated masking on the 3.3m projection screen means slick switching between 2.35:1 and 16:9 ratios – vital as this room gets used with a variety of gaming, TV and film material

E. In control

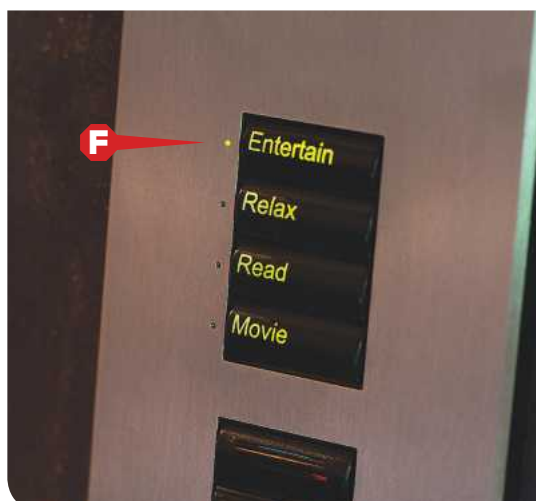
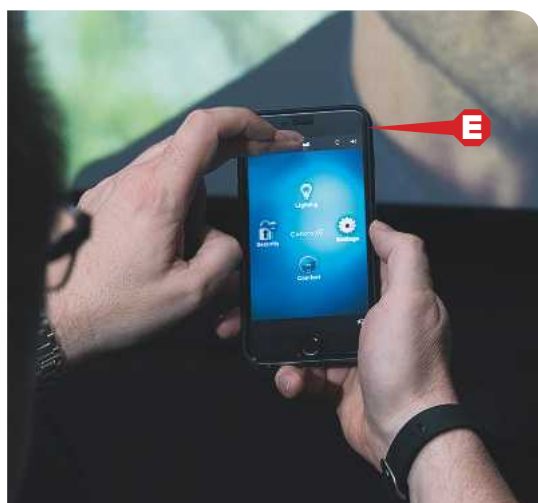
The AV system is integrated into a Control4 system, and users can operate either from a dedicated handset, or through a smartphone app

F. Setting the scene

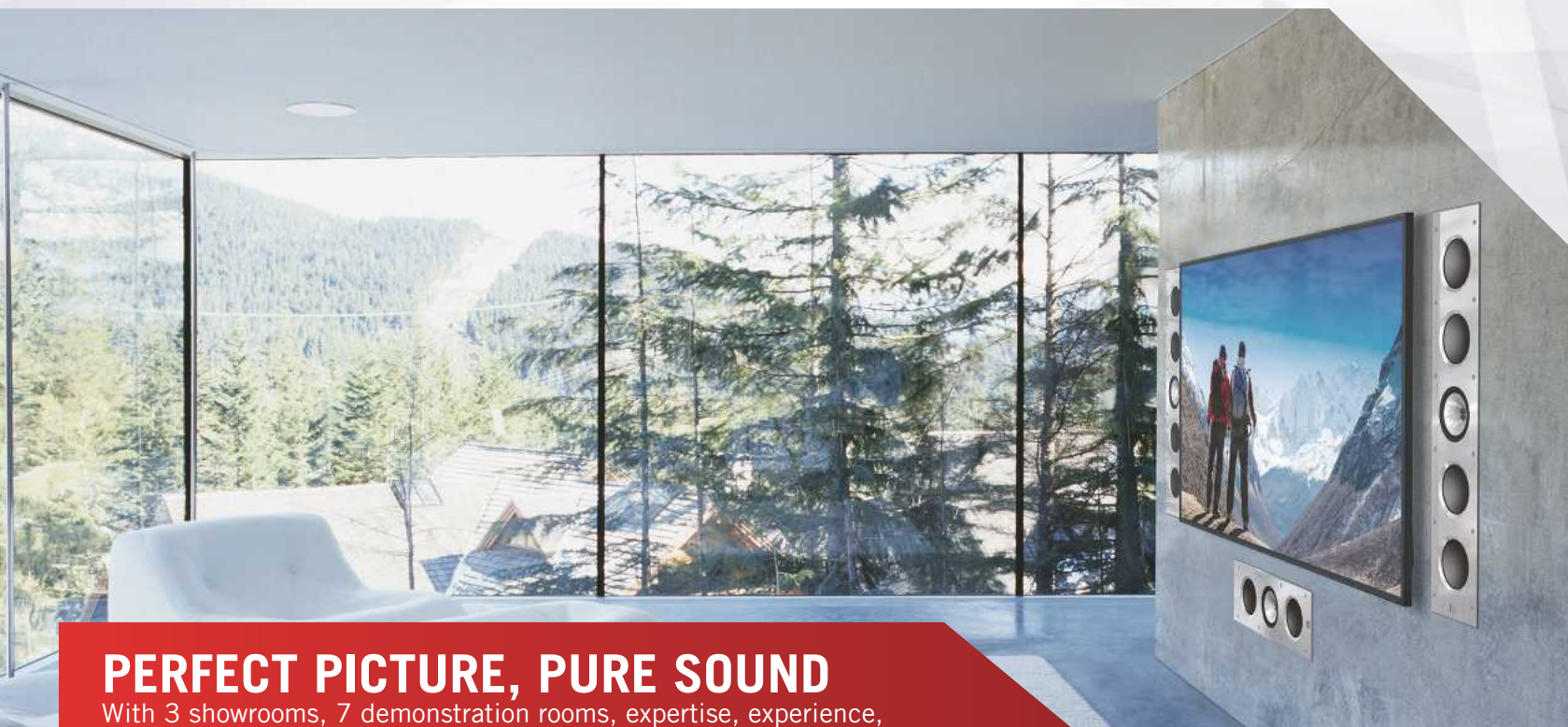
On-wall down/uplighters provide ambient light for when the room isn't being used in blacked-out movie mode. The ceiling also incorporates a lighting circuit, and upon entering the room a Lutron keypad offers four preset lighting modes

G. Take a seat

There's seating for four, with an array that cunningly creates a prime central position







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REVIEWS

→ **HARDWARE** PHILIPS 55in OLED 4K TV with Android smarts SVS 16in ported and sealed premium subwoofers YAMAHA Seven-channel AVENTAGE AV receiver PANASONIC Step-down Ultra HD Blu-ray player ONKYO Digital audio player BLUESOUND Pulse Soundbar LG Portable short-throw projector ROUNDUP Sub-£100 media streamers & MORE!

Pushing Full HD to the limit



The W8000 is BenQ's best-specified Full HD projector. Can it impress at a price point where rivals are offering HDR and 4K enhancements? See p48.

HCC RATINGS KEY...

Outstanding	★★★★★
Above average	★★★★☆
Acceptable	★★★☆☆
Disappointing	★★☆☆☆
Dire	★☆☆☆☆

All prices quoted are approximate and may have changed

AV INFO

PRODUCT:

A 55in 4K OLED TV with HDR support and Ambilight

POSITION:

The premium TV in Philips' range

PEERS:

LG OLED55E6;
Samsung UN55KS9500

Philips takes OLED technology to a new level at the first time of asking, says an impressed **John Archer**

Hitting an OLED home run

The days when OLED TVs only arrived with LG badges on them are well and truly over. Over the coming months we'll see new models from Panasonic and Sony, while sat on my test bench is the first OLED screen from Philips: the £2,800 55POS901F/12. And if this set is representative of the quality we can expect from these other new OLED supporters, then 2017 could be a vintage year for AV fans.

However, while LG is no longer the only brand selling OLED TVs, LG Display is still the market big-boy when it comes to actually making OLED panels. So it's no surprise that one of LG's 2016 screens finds its way into the 55POS901F. As anyone with much experience of TVs knows, however, the panel is just the start of a TV's picture-quality 'journey'. An immediate question is whether Philips' famously powerful picture processing might take OLED to image heights it's never reached before.

Lean, mean OLED machine

Right from the off this 55in TV tickles you in all the right places. Its bodywork looks crisp and clean with slender lines and a bold, metallic finish. The gleaming soundbar hanging from its bottom edge promises better audio quality than you'd generally expect from a super-slim display, while the blade-like table-top legs do their best not to upset your *Feng Shui*.

This being a Philips-branded TV, there's the small matter of Ambilight to consider. This finds bold halos of colour radiating from the left, right and top edges of the bezel, via in-built LEDs. This can both make long-term viewing more relaxing on the eyes and increase your sense of immersion in what you're watching. Do, however, restrict Ambilight's brightness to around level two or three, and don't set it to react too aggressively to changes in the image content or you'll get an attention-grabbing light show.

The 55POS901F is well equipped with connections, including four HDMI (all capable of 4K HDR at 60fps) and three USBs.

The bulk of Philips' online content options come courtesy of the Marshmallow version of Google's Android TV platform, backed up by a smaller collection of apps housed under Philips' own proprietary smart TV system.

The Philips app collection is integrated fairly neatly into the Android TV home page. Of the latter, I'd still prefer greater opportunity for customisation and a better sense of presentation priority. But I've been saying that for ages and Google isn't listening.

BBC iPlayer is the only one of the UK's main catch-up TV services supported by the TV's smart system. And, at the time of writing, the Amazon app only supports 4K, not HDR.

The Netflix client, however, is fully up to 4K and HDR speed. Almost. The 55POS901F doesn't join LG's OLED TVs in supporting Dolby Vision HDR, a format that's now available on both Netflix and Amazon, and will be supported by Philips' own 4K BD players.

Philips has, however, confirmed that the TV will be upgradable to support the Hybrid Log-Gamma format in the future. Bear that in mind if you're shopping for a TV to cover all bases.

The TV is supplied with a double-sided remote control – the back panel houses a QWERTY keyboard to make it easier to enter text into video apps, etc. It also has a centralised touchpad and voice search function. Philips says that the TV will display an onscreen message when the remote's batteries are low.

Covering all bases

The Perfect Pixel Ultra HD processing engine driving the 55POS901F is Philips' most powerful, featuring elements aimed at boosting contrast, colour, motion clarity, detail... every aspect of picture quality, basically.

This may alarm the sort of AV enthusiast who prefers pictures to be tinkered with as little as possible on their journey from source to screen. However, powerful processing – when applied sensibly – certainly can improve image quality. This is a fact borne out by the Movie picture preset available here. This deactivates most of the

1. The handset has a QWERTY keyboard on its back panel

2. The TV is Philips' first to use OLED tech



SEVEN UP!
The Magnificent Seven rides into 4K Blu-ray battle, p96



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processing engine elements, and delivers pictures that look less convincing and enjoyable than tweaked versions of some of the other presets.

You need to pick your way through the features of Perfect Pixel Ultra HD and activate/deactivate to suit your tastes. For instance, I'd recommend turning off all noise reduction for 4K viewing, and only use the other processing options (especially the one that handles motion clarity) on their lowest power settings. At least Philips gives you the tools to make these corrections, though – and the result of your up-front tweaking efforts is some majestically good picture quality.

The TV greets you with that familiar OLED impact when it comes to black level response. The shots of space around the Enterprise in the *Star Trek: Beyond* 4K Blu-ray feature black colours delivered with exquisite depth and naturalism. There's not a hint of grey, nor any evidence of the sort of backlight clouding or striping around bright objects you would expect to see with an LED/LCD screen.

Bright *Star Trek Beyond* objects, such as sunlight reflecting off the Enterprise's hull, don't hit you with the ferocity that you get with a super-bright LCD display; the 55POS901F only manages around 640 nits of illumination (measured with a 10 per cent white)

'The TV greets you with that familiar OLED black level – deep tones delivered with exquisite naturalism'

versus the 1,000 nits and more the other type of screen can deliver. Yet this OLED TV's strengths with black level ensure that the images still feel dynamic.

And there's processing nous in play here. From my previous experience with LG's OLED TVs, Philips' HDR peaks feel more substantial; bright elements seem more intense, while blacks look that little bit deeper. It helps, too, that HDR clipping (where the brightest parts of an HDR image can lose colour and light tone subtlety), appears less of an issue here.

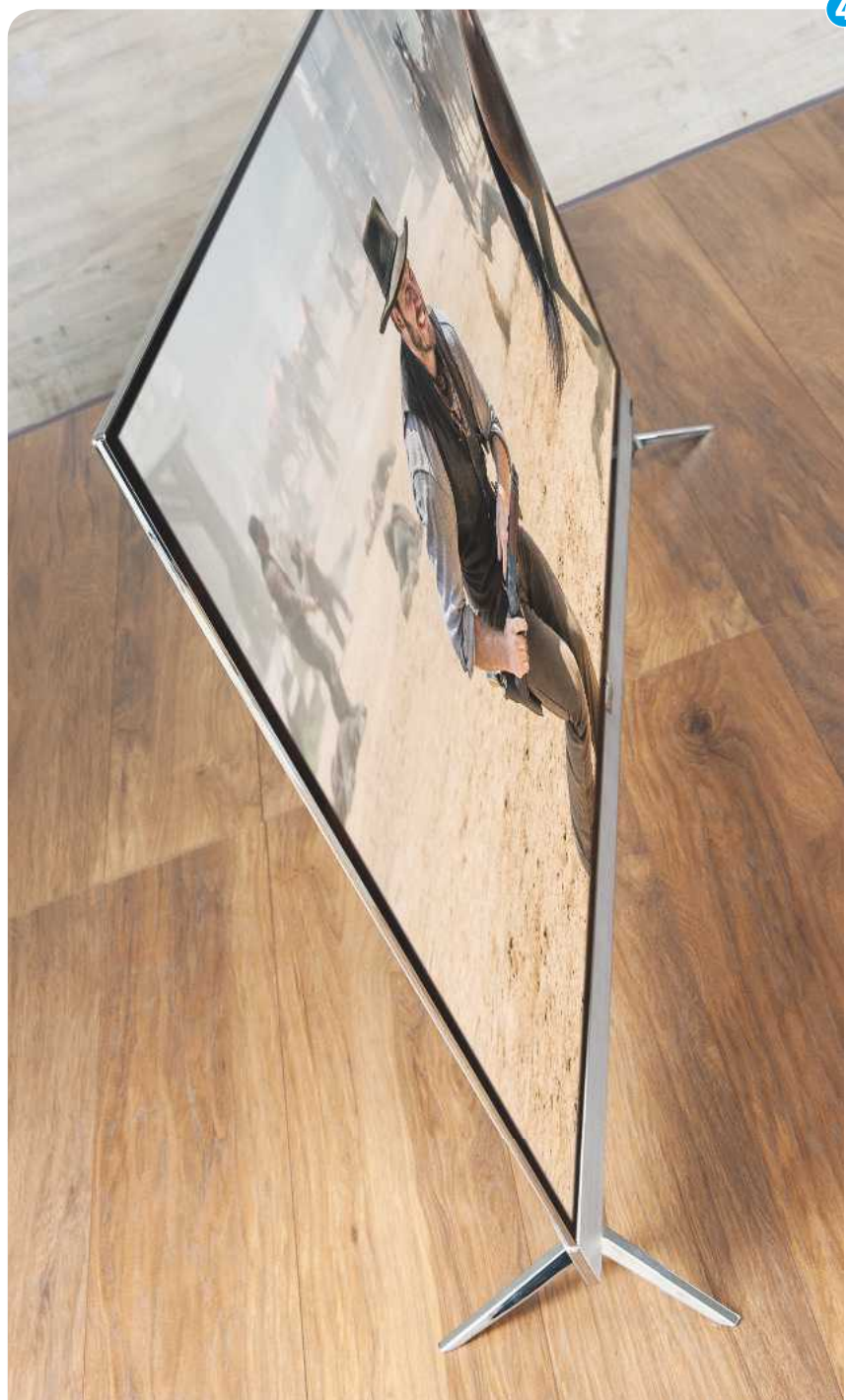
Got the light touch

Continuing the theme of finding ways in which the 55POS901F outguns its LG rivals, it also proves better at controlling light output (reducing grey pollution) at just-above-black levels. And it suffers with no visible light banding issues when watching real-world content – even the glistening white shots in Tom Cruise's monitoring room in *Oblivion* (one of my regular demo scenes) look smooth and balanced from one side of the screen to the other.

Switching to the *Exodus: Gods & Kings* Ultra HD Blu-ray – and the meeting between Moses and Nun in the hut in Chapter 7 – finds the Philips set looking rather imperious with extremely dark picture areas, and free of blocking effects.

There's a less noisy, more controlled look to areas of fine colour transition too. So, for instance, the striations of colour and light that characterise many of the wide desert shots in *Mad Max: Fury Road* on Ultra HD Blu-ray appear clean and natural.

Colour rendering is excellent. There's finesse in the way the set conveys very bright, punchy areas of colour, such





5

as the flames of the explosions and exhaust 'burns' in *...Fury Road*. And subtly-toned fare, such as the shots across New York as they fight to land the plane in the Hudson River in *Sully*, also impresses with smooth blends.

Clarity and sharpness are other strengths, and here Philips' Ultra Resolution feature pays dividends. Activate this and you'll see both native 4K and, especially, upscaled HD pictures looking markedly more detailed and crisp than they do on LG's OLEDs. *Sully*'s New York landscape shots look so detailed, in fact, that they sometimes feel like they've crept beyond 4K. You need to reduce the Ultra Resolution sharpness setting a notch or two from its default position, though, or your eyeball enjoyment will suffer from noise and stressy edges.

The 55POS901F proves excellent at motion handling. Even without motion smoothing in play, camera pans and fast-moving objects are crisp and free from judder. Use the lowest setting of Philips' Perfect Natural Motion system and you can remove almost all judder without causing many unwanted side effects, or creating soap opera-style fluid visuals. Although for some, one artefact is one too many.

Philips' in-built 30W speaker array sounds considerably better than the squawkers often used in super-thin TVs. The forward-facing soundbar delivers strong levels of clarity and attack in *Star Trek: Beyond* when the Enterprise takes on the baddies with the help of The Beastie Boys' *Sabotage*, combining plenty of detail and punch with smooth, always intelligible vocals. A rear-mounted bass

SPECIFICATIONS

3D: No **4K:** Yes. 3,840 x 2,160 resolution **HDR:** Yes. HDR 10 **TUNER:** Yes. Freeview HD; satellite HD **CONNECTIONS:** 4 x HDMI inputs; 3 x USB inputs; Ethernet port; headphone jack; RF input; digital audio output **SOUND:** 30W **BRIGHTNESS (CLAIMED):** N/A **CONTRAST RATIO (CLAIMED):** N/A **DIMENSIONS (OFF STAND):** 1,228.6(w) x 751.9(h) x 49.4(d)mm **WEIGHT (OFF STAND):** 17.42kg

FEATURES: Built-in Wi-Fi; USB multimedia playback; DLNA multimedia playback; Perfect Pixel Ultra HD processing engine; 3-sided Ambilight; Ultra Resolution; Perfect Natural Motion; Micro Dimming Premium; YouTube, Netflix, Amazon and BBC iPlayer apps; Android TV; USB recording/pause live TV; QWERTY keyboard on supplied remote; HDCP 2.2 on all four HDMI inputs

PARTNER WITH



PHILIPS SKYQUAKE: This quirkily-named soundbar aims to bring Dolby Atmos sonic immersion from a single speaker enclosure (with upfiring drivers) and accompanying subwoofer. Price is £800 – full review in our next issue...

driver provides a decent amount of low-end heft, too, and none of the speakers succumb to distortion or crackling unless they're driven to volumes well beyond anything likely to be comfortable for most rooms.

Potential pitfalls

With all types of content, this Philips set is routinely brilliant, and – as mentioned – more accomplished when it comes to the finer points of image quality than previous OLED models. But there are areas where it's not as impressive, of which potential buyers should be aware. Firstly, brightness is limited in comparison to incoming rivals – the newer OLED panels in LG's 2017 range should push nearer to 800 nits, while LED-lit LCD TVs are marching on into the high 1,000s. As I cover in the feature on p20, this makes the 55POS901F relatively limited in the amount of colour volume it can deliver.

I was also slightly disappointed that the lowest input lag measurement I could get from the TV was 55ms. This isn't disastrously high, but is nearly double what competitive gamers would like to see.

Nor does this set cater for those with 3D Blu-ray collections. In keeping with Philips' strategy with LCD TVs, 3D has been jettisoned.

It's also worth pointing out that you can get LG's OLED55E6 for around £2,500 these days, saving you £300 on the launch price of this Philips. That model is also confirmed to be getting HLG support to compliment its existing Dolby Vision and 3D playback talents, and uses the funkier WebOS user interface.

Even judged purely on its performance, though, Philips' OLED debut seems more than worthy of its £2,800 ticket, and is a great way to kick off the next stage of the OLED revolution ■

3. The under-bezel bar incorporates the TV's 30W speaker system

4. Use the set's Ultra Resolution processing to boost image sharpness

5. HDMI inputs (all HDCP 2.2) are side-facing for a discreet hookup

HCC VERDICT

★★★★★

Philips 55POS901F/12

→ £2,800 → www.philips.co.uk

WE SAY: The 55POS901F is an OLED champion in image quality terms, but isn't the complete package, lacking some video-on-demand and HDR options, not to mention 3D playback.



Danny Phillips is back at the top end of the soundbar market with Bluesound's multiroom/hi-res hedonist

Pulse aims to beat all challengers

Gone are the days when a soundbar's only job was to amplify the sound from your TV – nowadays they're all-round audio hubs that stream tunes over the internet and fling them wirelessly to other speakers.

At the forefront of this multiroom revolution is Canadian company Bluesound, part of the Lenbrook Group and sister brand to PSB and NAD. Bluesound specialises in networked audiophile speakers that can whisk hi-res music around the house in glorious 192kHz/24-bit quality. An audiophile iteration of Sonos, if you will.

The latest addition to its family is the Pulse Soundbar, which is not only one of the first soundbars to offer hi-res streaming but also the first to support MQA (Master Quality Authenticated) files over a network.

Design-wise, the Pulse Soundbar is every inch the high-end product. The chiselled enclosure is crafted from extruded aluminium, and makes the unit remarkably heavy for a soundbar – 6.8kg to be precise. It also allows the walls to be thin enough to maximise internal volume without compromising on rigidity, says the brand.

It sports a stealth black finish and complete lack of buttons. There's no LED display either – in fact the only sign of life is a ring of light on the front, which shines in different colours depending on which input is selected.

At over 1m wide, this is a buddy to 42in TVs and above, and when propped up on its kickstands, stands 14cm tall. This may well block your TV's sensor. Help is at hand in the form of Bluesound's TS100 [see Partner With, p46]. Or you can wall-mount using a supplied bracket/template.

The unit doesn't ship with a subwoofer, instead relying on generous cabinet volume, passive radiators and DSP



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AV INFO

PRODUCT:
Hi-res capable,
streaming soundbar

POSITION:
Bluesound's only
model in this
category

PEERS:
Cabasse Stream BAR;
DALI Kubik One;
Focal Dimension

equalisation to muster what Bluesound boasts of as 'outstanding deep bass extension' and 'earth-shaking power'. If you do find yourself hankering after more bass muscle, then a wireless Pulse Sub is coming later this year, as well as a dongle that lets you hook up any existing subwoofer without cabling.

For a £1,000 soundbar, socketry is on the stingy side, with no HDMI ports. Instead you get optical and analogue phono inputs, a USB port and Ethernet for wired network playback. There's also a sub output for those who want to beef up bass the old-fashioned way.

Connections are housed in an upward-facing recess on the rear, which makes them easy to access when placed on a TV stand. If you need them facing downwards for wall mounting, then simply flip the 'bar upside down.

The product comes equipped with Bluetooth 4.0 with aptX, and Wi-Fi. You can therefore stream music from NAS drives and PCs, but for greater interoperability and a real high-end setup you can team the Pulse Soundbar with Bluesound's £1,100 Vault2. This is a smart-looking 2TB hard drive that rips CDs in high-resolution FLAC (or lossy MP3) and allows them (plus all manner of online services, including hi-res ones) to be streamed to the Pulse and other Bluesound speakers, or your own hi-fi gear – all without a computer in sight. It's frighteningly well-featured.

You don't need the Vault2 to sample the delights of Bluesound's hi-fi ethos, though. The beating heart of



Bluesound's multiroom ecosystem is BluOS, powered inside the Pulse Soundbar by a 1GHz ARM Cortex processor. Download this app onto your phone or tablet and you can stream music from your own servers or access a dizzying range of online services, including Deezer, Spotify, TIDAL, Qobuz, Napster and internet radio. Some are native, some divert you to their respective apps.

The BluOS app is terrific, using clear, intuitive menus with slick sidebars and copious cover art. The search tool finds music in a flash and speedy swiping doesn't fluster it. But there are a couple of niggles. Firstly, the Linux-based BluOS doesn't adhere to DLNA/UPnP protocol, which means you have to manually add NAS drives to the library and re-index to add any new music. It's not tricky to do, >

**1. No buttons, no logo
– just a status LED**

**2. Bluesound's Vault2
is a CD-ripper/hi-res
streamer/potent DAC**



3

but lacks the simplicity and immediacy of rival multiroom apps that find servers and update libraries without prompting. Also disappointing is the lack of a remote for the 'bar, which means you're either tied to your smartphone for every little function – annoying when you only want to adjust volume or switch inputs – or have to pair your TV's zapper to the Pulse Soundbar via IR learning.

Sonic six-pack

Six active drivers are tucked into the cabinet – dual 2in midrange cones, two soft dome tweeters and two 4in woofers, each powered by a dedicated amplifier. These are bolstered by two 4in passive radiators, and a DSP engine to marshall crossovers and EQ.

'The Pulse Soundbar creates a huge soundstage with power in spades, plus bite in the mids and treble, too'

Hit the ignition with *Rush* on Blu-ray and this soundbar really does generate an astonishing amount of bass. As cars tear round the Nürburgring, it fills my room with the deep, guttural rumble of Formula 1 engines. You can practically smell the petrol fumes.

There's a huge soundstage with power in spades, relishing the cheering crowds and Hans Zimmer's propulsive score, and brilliantly conveying the spectacle and drama. The bar's wide dispersion pushes zooming cars and driving rain beyond the edges of the screen. As a stereo soundbar there's a limit to the amount of envelopment it can provide, but front stage steering is excellent.

There's bite in the mids and treble too, making engines sound suitably jagged and raspy. The rock soundtrack accompanying Lauda's comeback race is punchy and exhilarating, and there's a composed air to its presentation that makes you feel like you're in safe hands.

The commentator's voice remains audible amid the noisy engines, indicative of the Bluesound's clear, direct midrange. Similarly, Chris Hemsworth's purrs with depth and texture, an example of the custom driver units working together in perfect harmony.

There's a decent amount of detail here – the whirring of pit stop machinery sounds clear and precise – but I could do with a little more clarity and nuance at the top end.

SPECIFICATIONS

DRIVE UNITS: 2 x 1in soft dome tweeters; 2 x 2in treated paper cone midbass drivers; 2 x 4in woofers; 2 x 4in passive radiators **AMPLIFICATION (CLAIMED):** 120W **CONNECTIONS:** Optical digital audio input; analogue phono input; subwoofer output; Ethernet; USB port; Type-B USB (service) **DOLBY TRUEHD/DTS-HD MA:** No/No **SEPARATE SUB:** No. **REMOTE CONTROL:** No. BluOS app **DIMENSIONS:** 1,073(w) x 141(h) x 70(d)mm **WEIGHT:** 6.8kg

FEATURES: Multiroom streaming; Spotify, Qobuz, TIDAL, Groove Music, JUKE, Murfie, KKBOX, Napster, Radio Paradise, Slacker, TuneIn radio, WIMP; apt-X Bluetooth; Wi-Fi; MP3, WMA, AAC, OGG, FLAC, WAV, ALAC, AIFF, MQA playback; Movie, Music, TV sound modes; RM Cortex A9 1GHz processor; Dolby mixdown to 2.1

PARTNER WITH



BLUESOUND TS100: This £300 TV stand is a perfect fit for the Pulse Soundbar, using its wall-mount bracket to lock into place. VESA points on the steel frame handle your screen, and the unit allows for up/down tilting to ensure an accurate viewing angle.

Switch to *The Force Awakens* and as Rey potters about in the Star Destroyer, the rustling and clanking isn't conveyed with the same precision as the DALI Kubik One or the Cabasse Stream BAR auditioned in *HCC* #269. Both those rivals play the scene with greater subtlety.

Another minor complaint concerns bass – its powerful rumble conveys scale brilliantly, but smaller, faster beats could do with being tighter. Blaster shots don't carry quite the same firmness and punch.

The Pulse Soundbar is great with TV material. Long spells of chewy dialogue in Channel 4's *Homeland* are clearly conveyed, while the layered music and ambience are skilfully rendered.

I piped a range of tracks over a network and the 'bar does a bang-up job, particularly with hi-res material – a 96kHz/24-bit MQA file of Steely Dan's *Gaucho* sounds silky and sumptuous, with smooth saxophone lines and good clarity in Donald Fagen's vocal. It's also forgiving of lower-quality fare – a 320kbps MP3 of Gregory Porter's *French African Queen* pulsates with crisp brass, smooth vocals and tinkling pianos. However the muddy double bassline underlines a slight lack of low-frequency agility.

Accommodating audio

This has all the makings of a five-star soundbar, with its swanky design, audiophile spec and top-drawer streaming functionality. I admire its accommodating way with hi-res audio, and the intuitive BluOS app. Its performance doesn't always get the heart racing, though. It's big and powerful, with clarity and attack, but lacks the finesse and fluidity of some upper-market rivals, while the lack of HDMI ports is a little galling at this price.

A qualified recommendation, then, and for those already with Bluesound gear, this'll slot right in ■

3. Analogue and digital audio inputs, but no HDMI

HCC VERDICT



Bluesound Pulse Soundbar

→ £1,000 → www.bluesound.com

WE SAY: A beautifully made soundbar that delivers movie sound on an epic scale, alongside varied hi-res streaming functionality. But a lack of top-end subtlety counts against it.

AVR850



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AV INFO**PRODUCT:**Single-chip DLP
Full HD projector**POSITION:**BenQ's premium HD
projector – although
4K models are
imminent**PEERS:**Sony VPL-HW65ES;
Epson EH-TW7300

This Full HD home cinema projector excels in some areas, but still leaves **John Archer** wanting more

BenQ sets its sights higher

BenQ is a champion of the affordable projector world. Pretty much all of its budget 'home entertainment' DLP projectors in recent times have outperformed both their price points and most of their competition. I was therefore intrigued by the prospect of a new mid-range W8000 home cinema model. If BenQ can deliver quality on projectors costing under £1,000, surely it can work wonders with a projector that costs £3,000?

The W8000 certainly looks like it means business. Its footprint is large even by mid-range cinema projector standards, and it stands higher, too. It's also heavy, suggesting there's plenty of quality electronics and optics tucked away under its substantial hood, while its black finish is ideal for the sort of 'bat cave' environment most movie fans will be looking to put it in.

Connections are found to the rear, and comprise two HDMI; a 12V trigger port; a component video input; a D-Sub PC jack; an RS-232C port to help you add the projector to a home control system; and a 3D sync jack. No 3D glasses come as standard with the W8000, though, and BenQ didn't provide any for this review.

Lifting a flap on the PJ's upper edge reveals sensitive wheels for optically shifting the image up, down, left and right, while the standard-throw lens I received with my test W8000 offered a reasonable amount of optical zoom. As a clear sign of how serious BenQ is about the W8000, though, it's available with a variety of different lenses, including a long-throw option for really large rooms.

The only downside to providing lens options is that it prevents the W8000 from featuring motorised control of its zoom, focus and image shifting functions. You'll have to get off your backside and do it all manually.

As you would expect of a serious movie machine these days, the projector carries a suite of calibration options, from full colour and white balance management to a selection of gamma presets and a decent amount of control over BenQ's edge-enhancing, motion-smoothing picture processing engine. Its presets also include a THX mode, indicating that the W8000 has earned THX certification.

There are two different ways of dynamically controlling the projector's brightness: a dynamic iris option that adjusts the amount of light the lens lets through;

and a 'Smart' mode that adjusts light output at the lamp. Both these options can constantly adjust light output based on the image being shown.

The W8000 uses a single-chip DLP engine, with a colour wheel specially designed to deliver the REC.709 home video standard. In fact, every W8000 has been calibrated on BenQ's production line to get as close as possible to REC.709, I'm told.

Wot, no HDR?

A fascination with REC.709 alerts you to the fact that the unit isn't interested in HDR imagery and wide colour gamuts. Nor, it turns out, does the W8000 offer any support for 4K playback. This is a bit of a blow, as Epson's recently reviewed EH-TW7300 projector [see HCC #269] can handle both HDR and 4K, and costs £800 less.

Okay, the TW7300 isn't bright enough to make a good fist of its HDR playback despite incorporating a wide colour gamut filter, and its 4K playback is actually created by placing two marginally offset 1080p chipsets in sequence to deliver a pseudo 4K effect. This 4K 'enhancement' system works quite effectively, though, so it still leaves the lack of any 4K option here looking a little awkward.

First impressions of the W8000's picture quality suggest that you might not miss 4K and HDR support all that much (and some buyers won't have even experienced it to miss it in the first place). The Blu-ray of disaster thriller *Deepwater Horizon* looks beautifully crisp and packed with detail here, regardless of whether you're watching one of the film's many extreme close-ups, or an external shot of the prospecting rig in all its rugged pre-destruction glory.

The almost three-dimensional clarity of the W8000's pictures is down to more than just an uncanny knack of maintaining as much pixel-for-pixel precision as possible. >

1. BenQ's zapper is backlit and offers one-button access to colour management

2. The W8000 can be specified with short, standard or long-throw lens options



1





SPECIFICATIONS

3D: Yes. Active (no glasses supplied) **4K:** No. 1,920 x 1,080 resolution **HDR:** No
CONNECTIONS: 2 x HDMI inputs; RS-232; 12V trigger; component video input; D-Sub
 PC port; 3D Sync port; composite video input **BRIGHTNESS (CLAIMED):** 2,000
 Lumens **CONTRAST RATIO (CLAIMED):** 50,000:1 **ZOOM:** Varies on lens specification.
 Standard lens is 1.25x (not motorised) **DIMENSIONS:** 431(w) x 167(h) x 321(d)mm
WEIGHT: 8.8kg

FEATURES: Single-chip DLP projector; two USB inputs (one service port, one
 charge); five lens options; ISF and THX certified; 6,000-hour claimed lamp-life in
 Smart Eco mode; 31dB/28dB normal/eco running noise; motion/edge enhancement
 processing; colour management; 1.54-1.93:1 throw ratio (standard lens)

PARTNER WITH



BENQ WIRELESS FHD KIT: This optional accessory lets you stream uncompressed 1080p content direct to the PJ, removing the need for an HDMI connection. Dubbed the WDP02, the receiver unit (left) charges via the W8000's USB input.

3

It's also a product of some exquisite colour handling. The scene in the *Deepwater Horizon* 'boardroom', where rig boss Jim argues with BP management, contains a particularly tricky mix of harsh lighting, bright skin tones, richly coloured shirts and overalls, and subtly shaded white walls and ceilings. The W8000 handles all of these potential pitfalls with real authority, leaving every tone and tonal shift looking convincing.

'The W8000 handles colour with real authority, leaving every tone and tonal shift looking convincing'

Bright image content, such as stark ceiling lighting and shots of the sun-drenched sea, is solid and realistic, avoiding the unnatural hollow 'glow' effect that I've witnessed often on DLP projectors.

Motion is dealt with well, too. There's no sense of judder or blurring even without the optional motion processing in play. In fact, the image is at its best when it's *au naturel*, with most of the video processing turned off.

Dark horizons

So far the W8000 has lived up to its £3,000 price tag. Unfortunately, though, *Deepwater Horizon* – in keeping with pretty much every other film – is not uniformly bright. There are more than a few dark scenes, especially when night-time sets in. And whenever the image is predominantly dark, the PJ betrays a couple of flaws.

First, its black level response is rather uninspiring. As Mike and Andrea stand on top of the rig towards the film's end, the night sky looks more grey than black. You can reduce the impact of this to an extent if you use the Smart Eco lamp setting, but the black level response is still only average in comparison with models such as Sony's VPL-HW65ES, which sells for roughly the same price.

It doesn't help that the Dynamic Iris option is pretty much unusable, responding so slowly to brightness

changes in the image that you're forever being distracted by its ponderous workings.

To be fair, the projector's uninspiring contrast doesn't lead on to a serious loss of shadow detail in dark portions. But the absence of a convincing black colour means dark scenes never look entirely convincing, and as such stand in stark contrast (ironically) to the W8000's beautifully managed bright scenes.

Epson's EH-TW7300 handles dark scenes with more aplomb, despite using an LCD projection system that I would normally expect to struggle more in this regard than the W8000's DLP engine.

Another problem is the rainbow effect. I only consider myself moderately susceptible to seeing tell-tale stripes of red, green and blue over stand-out bright parts of an image with DLP tech, but here I was distracted by it.

It didn't crop up all that often in the relatively bright and naturalistically lit *Deepwater Horizon*, but with darker films like the final *Harry Potter* movie and *Alien* the rainbowning was a persistent pest.

And if you're thinking of gaming on the W8000, there's a final foible to report: high input lag. Even when using its game mode, my test sample took the best part of 100ms to render images. This is at least three times higher than it needs to be for a satisfyingly competitive gaming experience.

Falling short

While the W8000 predictably shows some clear signs of the sort of brilliance I would expect from a step-up projector from BenQ, and can look routinely gorgeous with HD content, overall it falls short of more affordable rivals in key areas. Good but not great, although its varied lens options may be a deal-sealer for some ■

HCC VERDICT



BenQ W8000

→ £3,000 → www.benq.co.uk

WE SAY: The W8000 delivers a beautifully sharp and gorgeously coloured image, but it's let down by average black levels and high input lag.

3. Horizontal/vertical lens shift and menu access are tucked behind a pull-up flap

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16in woofers married to 1,500W amplifiers?
That gives **Mark Craven** an excuse to unleash Fury...

SVS's fellow sub-machines



1

Bass is a vital part of the home cinema package. Hefty, heaving, humongous low-frequencies are guaranteed to add scale and impact to a surround sound experience, in a way that crystalline high frequencies or robust dialogue just don't. For some AV enthusiasts, their subwoofer is their favourite toy.

In that regard, the latest bass boxes from US speaker/sub brand SVS are a hoot to play with. But like all good toys they have a serious side. And they're somewhat expensive.

The £3,000 PB16-Ultra and £2,500 SB16-Ultra are SVS's largest subwoofers yet in terms of driver design,

outranking the previous PB13/SB13 models. Both use a new front-firing 16in woofer, hewn from a composite fibreglass resin material that the brand claims offers an 'optimal stiffness to mass ratio' for efficient air movement with control and lack of distortion. Working away behind the scenes are an 8in edge wound voice coil and quartet of ferrite magnets. In combination with the driver's fat rubber surround, the result is a suggested peak excursion of 3.7in.

Of course, the difference between the two is cabinet design. The PB16-Ultra is a triple-ported box, while the SB16 is sealed. Subsequently, to find space for all that airflow, the former is considerably larger, measuring 63.5cm high, 55cm wide and 78cm deep. Which, to put it another way, is likely to be bigger than most people's current subwoofers. The SB16-Ultra is squatter and almost 30cm less deep, and will be a much more natural fit in most setups. It's still not petite, though.

Shared across both subs is SVS's Sledge DSP amplifier, in this iteration rated at 1,500W continuous (and 5,000W peak) output.

Connectivity is the same on both models too, comprising stereo line-level input/output, LFE input and stereo balanced input/output for those with compatible processors. There's also a 12V trigger.

The back panel is somewhat unusual in that there are no dials for crossover, gain and phase. Step in SVS's iOS/Android app, which offers full control over such parameters plus parametric EQ, polarity and room gain compensation. There's also a front control panel with blue LED display – make an adjustment in the app and the panel notifies you.

The PB16-Ultra and the SB16-Ultra both launched at the CEDIA show in the US in September, were given a further unveiling at CES and have now made it across the Pond. To demo both of them together, we set up an audition at the cinema room of installer Media Frenzy, nearby to SVS's UK distributor Karma-AV.

Let's get tanked up

I began with the PB16-Ultra, running with a surround set of Revel speakers and Primare amplification. I could have started with the smaller, sealed version, but wanted to kick things off with a bang. Or boom.

The WW2 tank actioner *Fury* provides ample moments for the monster SVS to flex its muscles, and the woofer does so with enough might and muscle to be truly terrifying. Bass tumbles forth from its oversize, front-facing driver into every corner, imbuing each low-end effect with delicious weight and scale, without a trace of distortion or cabinet interference.

During the sequence where Brad Pitt's tank crew head across the field to engage German troops sheltered in a tree line, the PB16-Ultra showcases slam, speed and depth. The latter is present in the rumble of the Sherman M4's caterpillar tracks; this metal machine sounds big and present in the room, simply much bigger than you get on smaller, more affordable subs. And it delivers bass that you feel as well as hear.

The sound of artillery hitting the outside of *Fury* (the name of the tank) has a short, bouncy thud; this is followed by a huge boom as our heroes retaliate with a 76mm gun, and then bursts of machine-gun fire which hit quick and hard. That 16in driver may be large, but it isn't slow.

AV INFO

PRODUCT:
Ported and sealed
16in subwoofers

POSITION:
The new top-tier
models in SVS's
subwoofer range

PEERS:
Velodyne DD12+;
REL Gibraltar G-2



1. The ported version (right) is considerably larger – and heavier

2. The subs' small remote gives quick access to preset EQs



Edge of Tomorrow offers an LFE masterclass, and a nice surprise right at the film's beginning. As the opening Village Roadshow logo flickers on screen, the sound designers add a portentous sequence of varied low-frequency tones, signalling the alien invasion drama to come. They're mixed deep and loud, and the PB16-Ultra has the reach to handle each tone in succession, including the oh-so-low final note, its driver rollicking in its surround, relishing the sub-bass challenge without losing grip.

Cut to the initial drop-ship sequence and mimic fight ('drop or die!') and the PB16-Ultra continues to ratchet up the drama, supplying rich notes to the moody orchestral soundtrack, lowly rumbles to the background carnage and a massive slam as Emily Blunt emerges from a wreck and then dies (but doesn't...). It's jaw-on-the floor stuff.

On the other hand...

The PB16-Ultra, then, is a subwoofer for people who really love subwoofers. The SB16-Ultra, on the other hand, is for people who also really love subwoofers, but have a fondness for money and a tidy front room, too.

The two products look different and they sound different also. It's much as you'd probably expect, with the sealed version not carrying its output to quite the same levels of heart-stopping depth, but appearing to have marginally more control. Everything is just a little tighter.

For instance, the tank attack sequence in *Fury* again casts artillery blasts and shell ricochets with punch and depth, but sounds a little less off-the-leash and not quite as deep. Conversely, there's more of a synergy and coherence between sub, speakers and onscreen action.

With *Edge of Tomorrow*, it again handles the ultra-low tones at the beginning, and better delivers the varied chaos of the drop-ship scene.

Comparing both with the opening swell of the *Gravity* soundtrack, which cuts to utter silence, finds them stopping with just the tiniest, barely noticeable overhang.

And, again, there's the beauty of its tone to bathe in. It's a distortion-free, full-bodied experience, without the dryness or lack of nuance of less well-engineered rivals.

The Bluetooth app is perhaps the least impressive part of the PB16-Ultra/SB16-Ultra package. It's easy to read and won't take you long to get used to (there's an in-app tutorial to guide you), but I did find it sometimes being laggy in operation and had some 'not-in-range' drop-outs despite standing right next to the woofer. Also, the sliding scales on the parametric EQ system are quite fiddly to operate on a smartphone. A phablet or tablet will provide a better touchscreen canvas.

As for that parametric EQ, there are three memory slots that can be customised to your tastes, with +6dB/-12dB adjustment along the frequency range, with Q-factor tweaking too (letting you select the narrowness of the curve you introduce). By all means you can play around, but the idea here is to combine EQ adjustment with an in-room frequency analysis.

There are two preset EQ modes to choose from straight off – Movie (which is unadulterated) and Music (which



SPECIFICATIONS

SVS PB16-Ultra

DRIVER UNITS: 1 x 16in fibreglass resin composite woofer, with 8in edge wound voice coil **ENCLOSURE:** Triple-front-ported **FREQUENCY RESPONSE (CLAIMED):** 15Hz-280Hz (+/-3dB, standard mode); 13Hz-280Hz (+/-3dB, extended mode); 14Hz-360Hz (+/-3dB sealed mode) **ON BOARD POWER (CLAIMED):** 1,500W continuous, 5,000W peak **REMOTE CONTROL:** Yes, plus SVS app **DIMENSIONS:** 551(w) x 635(h) x 784(d) mm **WEIGHT:** 79.1kg **CONNECTIONS:** LFE input; stereo line-level input; stereo line-level output; stereo balanced input; stereo balanced output; 12V trigger input

SVS SB16-Ultra

DRIVER UNITS: 1 x 16in fibreglass resin composite woofer, with 8in edge wound voice coil **ENCLOSURE:** Sealed **FREQUENCY RESPONSE (CLAIMED):** 16Hz-460Hz (+/-3 dB) **ON BOARD POWER (CLAIMED):** 1,500W continuous, 5,000W peak **REMOTE CONTROL:** Yes, plus SVS app **DIMENSIONS:** 495(w) x 508(h) x 510(d)mm **WEIGHT:** 55.3kg **CONNECTIONS:** LFE input; stereo line-level input; stereo line-level output; stereo balanced input; stereo balanced output; 12V trigger input

PARTNER WITH



SVS ULTRA TOWERS:

Match SVS's subwoofer to the company's Ultra series home cinema speakers, which share the same premium performance ethos. A pair of the three-way Tower floorstanders will set you back around £2,200.

adds a gentle bump at 63Hz). I'd suggest following SVS's advice and using them as advertised, as the Music option seemed to lend a warmer, rounder edge to, for example, the repetitive basslines in 2Pac's hip-hop groove *Picture Me Rolling*. Both presets are set to -10dB, which you might want to override.

Choose your weapon

If previous sales figures are anything to go by, SVS will sell a good deal more of the sealed version of its new flagship than the ported.

It's easy to see why: the SB16-Ultra saves you £500, comes in a more manageable package and remains a brilliant subwoofer that's fast, controlled and can sniff out genuine sub-bass moments in your BD collection. The PB16-Ultra, meanwhile, is built for those whose rooms can handle its fear-inducing SPLs, and don't mind a bit of a wild ride.

And whichever you go for, get the black gloss version rather than the black ash – it looks smarter ■

3. The control app pairs to the sub via Bluetooth

HCC VERDICT



SVS PB16-Ultra

→ £3,000 → www.karma-av.co.uk

WE SAY: A genuine bass behemoth that will suit owners of large theatres and those that like a bit of terror with their Blu-rays. Simply too big to smuggle into a living room setup...

HCC VERDICT



SVS SB16-Ultra

→ £2,500 → www.karma-av.co.uk

WE SAY: Smaller in stature and output than the PB16, but still a stonking performer that's speedier and sounds more controlled. And it's more affordable, too.



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1



HOME
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Choice
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Ultra HD Blu-ray, ultra tempting price

Panasonic's second 4K disc-spinner arrives in [Steve May](#)'s viewing room shorn of a few features, but that doesn't stop it bowling him over with its pixel perfection

THE DMP-UB700 IS the cheaper stablemate to Panasonic's category-defining DMP-UB900 4K UHD player [see HCC #259]. A cursory glance would indicate there's not much that separates the two, so at around £300 (rather than the now £500 price of the UB900) is this charismatic mid-ranger actually the smarter buy?

Although cosmetically similar, the chassis of the UB700 is slightly different to its bigger brother. The player has the same dimensions, but the finish is gloss black without the hairline finish. Look underneath and you'll notice that the anti-resonance feet found on the high-heeled DMP-UB900 have gone, replaced by sorry-looking pads. And connectivity has also been stripped

back. There's an optical digital audio output, but the coaxial terminal has gone. Of more note, unlike the UB900, there are no multichannel analogue outputs either, which will strike it off the list of some buyers. In fact, there's no analogue audio output at all. Straight away you can see where costs have been cut.

There are two HDMI outputs, one of which is an audio-only option. You typically would use this if you had a non-4K capable AV

receiver and needed to connect the deck direct to a UHD TV. You can network the player using either Ethernet or Wi-Fi.

The front pull-down flap hides the offset disc tray, plus an SD card reader and USB port.

Operation is handled by a squat IR remote, which lets the side down somewhat. The full-length zapper for the UB900 was almost a thing of beauty – this looks like it's come from a different factory altogether. It gets the job done, though.

No SACD? Denied!

In addition to Full HD, 3D and Ultra HD Blu-rays, the player spins DVDs and CDs, but not Super Audio CD or DVD-Audio discs. It's not a one-stop shop.

Away from disc delights, the deck's content portal includes BBC iPlayer, BBC News and Sport, Amazon Video, Netflix, YouTube, My Space plus other less well-known apps. Netflix is 4K HDR enabled, but while the Amazon app supports 4K, it didn't allow for HDR playback during my audition. As always, keep an eye out for firmware updates.

Panasonic's in-built media player is good but not bullet-proof. Across a network, I had no trouble with MKV and 24-bit FLAC files, but hit a wall with DSD. Yet from a USB stick both DSD 2.8MHz and DSD 5.6MHz files were fair game, plus DSD 5.1.



2

AV INFO

PRODUCT:
4K/Ultra HD Blu-ray
player

POSITION:
Mid-range model,
beneath the
DMP-UB900

PEERS:
Samsung
UBD-K8500;
Xbox One S



Operationally, there are no UI changes over the DMP-UB900. In fact, what we have here is pretty much what Panasonic has been giving us on its Blu-ray platform for yonks. Menus look fine and navigation is fast and straight forward. The home page has icons for videos, music, photos, home network, network service and setup. The latter grants plenty of tweaking options, including sharpness, noise reduction and colour/luminance adjustment, plus a dynamic range conversion slider giving you some control over the image when viewing UHD BDs on a non-HDR set in standard dynamic range. Use this with caution (if you have to) as it can introduce unwanted colour artefacts.

Silicon siblings

Image quality is unequivocally fabulous. The UB700 delivers superb levels of fine detail and colour fidelity. Shot out against the UB900 on a 65in TV, I came to the conclusion that there's no subjective difference in picture quality between the two, a benefit of the same silicon (Panasonic's 4K High-Precision Chroma chip) being employed on both decks.

Like the UB900, the player interpolates 4K UHD Blu-ray content from 10-bit native on disc to 12-bit with 4:4:4 colour sub-sampling. There's no straight 10-bit output (although it can be set to output 4K at 8-bit 4:2:0).

The Amazing Spider-Man 2 (UHD Blu-ray) is a visual feast of detail and HDR dynamics, complete with a challenging colour palette. From the UB700, the film looks as pristine as a premiere, with crisp textures on clothing and wonderfully rich hues, particularly Peter Parker's get-up.

Home theatre audio is outstanding, too. When the remnants of the Russian spy satellite bullet into George Clooney's space shuttle and Sandra Bullock tries to disengage herself from the spinning arm (*Gravity*, Blu-ray), the soundtrack sent my viewing room into a dizzying spin.

A look around the menus reveals a 7.1-channel audio reformatting option. 5.1 may still be the dominant sound format for movies, although obviously Dolby Atmos is gaining traction, but with this setting on automatic, the player will expand any soundmix that's 6.1 or less into 7.1. For those that have invested in a full

SPECIFICATIONS

ULTRA HD: Yes **HDR:** Yes. HDR 10 **UPSCALING:** Yes. 2,160p **MULTIREGION:** No. Region B BD/R2 DVD **HDMI:** Yes. 2 x HDMI outputs (1 x audio/video; 1 x audio-only) **MULTICHANNEL ANALOGUE:** No **DIGITAL AUDIO:** Yes. 1 x digital optical audio output **ETHERNET:** Yes **BUILT IN WI-FI:** Yes **SACD/DVD-A:** No **DIMENSIONS:** 430(w) x 61(h) x 199(d)mm **WEIGHT:** 2.3kg

FEATURES: Dynamic range conversion adjustment; noise reduction; sharpness adjustment; colour/luminance adjustment; USB port; SD card slot; Panasonic 'Smart' portal with Netflix, Amazon, YouTube, BBC iPlayer; media playback with support for MKV, MP4, MOV, MPEG-2 (video); DSD (2.8MHz/5.6MHz), AAC, ALAC, FLAC, MP3, WAV and WMA (audio); Ultra HD Premium certified; High Clarity Sound mode; 4K High Precision Chroma Processor; picture presets

PARTNER WITH



THE AMAZING SPIDER-MAN 2:

One of the first 4K disc releases, *ASM2* benefits from its 35mm film origins and packs a bright, detailed, colour-infused 4K/HDR encode. An early sign that studio Sony Pictures means Ultra HD business.

7.1 surround system, this could hold appeal but its use remains a matter of taste.

The player may play second-fiddle to Panasonic's flagship, but still carries the brand's High Clarity Sound mode, which can operate either with or without onscreen video. The latter would be my default when kicking back with music.

The expanded and remastered edition of Hawkwind's *Warrior on the Edge of Time* (Atomhenge, DVD/CD) offers a great example of disc-based high-res audio. This three-disc set features a DVD pressing with a host of audiophile treasures – a 24-bit/96kHz LPCM stereo version of the album, a DTS 96kHz/24-bit 5.1 surround mix, a Dolby Digital 5.1 alternative and a 24-bit/96kHz version of the original stereo master. *Assault and Battery/The Golden Void* is space rock at its finest and here pressing and player unite in perfect harmony. The soundstage is crisp, ruthlessly transparent and engulfing.

Welcome to the party

The DMP-UB700 is what the 4K Blu-ray format has been crying out for – an enticingly priced spinner that leaves little to be desired in performance terms. Indeed, it offers seemingly the same level of image fidelity as its more expensive predecessor, and while it may not have quite the same sonic chops, still sounds fine with hi-res audio sources. There are some caveats, such as the lack of universal disc support and no prospect of Dolby Vision HDR playback, but if you want these then you simply have to look elsewhere.

It's a bit bland-looking, the app interface is showing its age and the remote control is straight out of the bargain bin, but ignore this and you'll be happy ■

1. The DMP-UB700 has an LCD display that shines through its front flap

2. Panasonic's half-size remote places its Netflix button dead centre

HCC VERDICT



Panasonic DMP-UB700

→ £300 → www.panasonic.co.uk

WE SAY: This mid-ranger offers unbeatable UHD video performance for the money, and is a solid all-round Blu-ray, hi-res music and streaming hub.



YOU'RE ONE CONNECTION AWAY FROM AWARD-WINNING TV SOUND



- Sits under or in front of TV, transforming sound with powerful 2.1 stereo and surround performance
 - Enjoy wireless music from all your devices via aptX Bluetooth
 - Great bass: no subwoofer required
 - Voice mode for super-clear dialogue
 - Easy, single-cable install
 - Includes learning remote
 - Available in white, silver & black*
- *DM100 silver & black only



DM55



DM75 Glass



DM100



Available now at [John Lewis](#) [richersounds](#) [amazon.co.uk](#)

Turn on, plug in, stream out

App addict Rik Henderson looks for the best media streamer he can get, armed with a £100 budget

AMAZON FIRE TV
Slick, well-specified 4K streamer

GOOGLE CHROMECAST ULTRA
Casting UHD with HDR support

NOW TV SMART BOX
Want a mix of PPV and Freeview HD?

ROKU 3
Small in stature, big in content

Amazon Fire TV

Literally a black box of tricks – but does this content-rich streamer need a 2017 overhaul?



AMAZON ENTERED THE media streaming hardware market in 2014 to great success with its Fire TV box. It followed up that original offering with another a year later, this time with 4K capabilities and more grunt under the hood. And it's that device that's still going strong today.

Rather than launch a third-generation replacement in 2016, Amazon pushed an all-new user interface instead and we're happy with that for now. The specifications of the current Amazon Fire TV are still better than most contemporaries and the new software makes it seem fresh and relevant.

The box is square, small and compact, looking more like a plinth for a trophy than a cutting-edge streamer, but has sufficient processing muscle to provide 4K Ultra HD visuals and surround sound (from suitable content) over its HDMI output. This port supports HDCP 2.2, so you'll naturally need similar on your TV, receiver or projector if you want to play content in 4K, but isn't capable of HDR playback, nor 4K content above 30fps.

You're best advised to link the Fire TV to the 'net by Ethernet cable for a stable Ultra HD stream. It does work over Wi-Fi, of course, but I've found the wired option more reliable as you don't have to worry about drop-outs. Amazon recommends a 15Mbps broadband connection for efficient UHD streaming.

A USB 2.0 port is included for external accessories, while a microSD card slot can

expand the 8GB of onboard storage for downloads – specifically apps and games.

Netflix acceptance

TV and movies are a big focus here. The Fire TV is one of very few devices that, as well as naturally featuring Amazon's own video content front and centre, has Netflix available too, and in 4K. It's rare to find both side-by-side outside of a smart TV. It's even stranger considering this is Amazon's own device and the retailer would surely rather you subscribe to its Amazon Prime Video service.

The new front-end software update also includes Netflix content in search results. You only need to search for a show name (actor or what-have-you) and it'll find contextual references across Amazon's own streaming library, and its rival's. You then start the show or movie directly from the search screen. Amazon will also be adding other streaming services to its search functionality, it claims, which is a welcome move.

The remote is geared to help search with a microphone for voice commands, which work well. It connects via Wi-Fi Direct for low-latency response, and that also means it doesn't require line of sight to your box. You can also add a similarly endowed game controller, although that will cost you extra.

The Amazon Fire TV's games library is chock-a-block these days, with free and paid-for-titles aplenty, including popular time-passers like *Crossy Road* and *Hill Climb Racing*. But it's really more of a media

munching monster than a console replacement. Plex is available for those who want to use it as an all-in-one media player, and terrestrial catchup services are available too; BBC iPlayer, ITV Hub, All 4 and My5.

A criticism (bar the lack of HDR support) is that, even with the new software, the Amazon Fire TV only works at its best when you have Amazon Prime membership. You get a lot for your £79 a year including plenty of 4K TV shows to stream (*The Grand Tour* included); if you don't want to cough up there's a lot about the experience you'll be missing out on.

You can buy or rent Amazon Video titles that aren't part of Prime, even in 4K, but we recommend signing up as going PPV is expensive. Partnered with a Prime sub, there's no better box out there for under £100.

SPECIFICATIONS

MAIN APPS: Amazon Video content baked into menu system; Netflix; BBC iPlayer; ITV Hub; All 4; My5 (Demand 5); Plex; Amazon Music; Spotify

CONNECTIONS: HDMI output (with HDCP 2.2); Ethernet; microSD card slot; USB 2.0

WI-FI: Dual-band 802.11a/b/g/n/ac

REMOTE CONTROL: Yes

DIMENSIONS: 115(w) x 17.8(h) x 115(d)mm

WEIGHT: 270g

FEATURES: 4K ready (2160p/30fps) but not HDR; contextual voice search; 8GB of onboard storage; optional game remote

Google Chromecast Ultra

The headline feature here is HDR streaming, but 'casting' might not be to your liking



THE GOOGLE CHROMECAST Ultra is the newest and most unusual device in this round-up of sub-£100 media streamers.

That's because, rather than a set-top-box with an HDMI output, it is an all-in-one dongle that plugs directly into a spare HDMI port on your TV or AV receiver. It uses HDMI 2.0a and requires HDCP 2.2 on your set for 4K HDR visuals to work, of course. There's also a microUSB port for power, which comes in the form of a separate mains supply plug.

This plug also has an Ethernet port built-in, which is a better solution to guarantee quality and stable 4K HDR video streams. There is dual-band Wi-Fi in the dongle itself, too.

Another reason the Chromecast Ultra sticks out amongst its peers is that it doesn't technically have much of an operating system. It doesn't have apps that you can download, either, and it doesn't even come with a remote control.

Instead, you 'cast' video to it through a smartphone, tablet or computer, which then streams independently over the 'net onto your TV. It sounds a bit like Apple Airplay, but the video is not streamed from the remote device itself, rather pulled from the 'net by the Chromecast, leaving your mobile device, Mac or PC free to be used in any way you fancy.

The Chromecast Ultra works with iPhone, iPad or iPod touch, Android phones and tablets and any computer running Google's Chrome internet browser. There is only a finite number of mobile apps that are compatible, however. These feature a small cast button, generally in

the top right-hand corner, signifying that you can connect. Most content played inside a Chrome browser on a PC will work, too.

Tap the cast button and the video you have queued will then transfer and start to play on your display. You can also then use your mobile as a makeshift remote control, if you like.

This method is elegant, works well and you can hide the Chromecast from sight rather have it taking up space on a TV stand. If you're looking for a stealth install, this is it.

HDR on the menu

The Chromecast Ultra is the latest version of Google's device and the first to embrace HDR streaming. It is also compatible with Dolby Vision for those with a TV that supports this particular HDR tech – essentially LG screen owners for now. This means that you can watch Netflix content in the format, although there's little else available in Dolby Vision from other services, and the Netflix client on your Dolby Vision-enabled TV will also be DV-ready. So it's more about futureproofing at present.

The Ultra is capable of Dolby Digital passthrough, up to 5.1 surround sound. It's worth pointing out, though, that not all the supported services have that capability themselves, and you might find some streaming in stereo. That's not a restriction of the device, rather the service itself. Plex, for example, worked fine with 5.1 content, as did Netflix.

There are some glaring anomalies and omissions when it comes to app support

SPECIFICATIONS

MAIN APPS: Netflix; Now TV; Google Play Movies; BBC iPlayer; ITV Hub; All 4; My5 (Demand 5); Plex; Spotify

CONNECTIONS: HDMI; microUSB for power; Ethernet on power supply

WI-FI: Dual-band 802.11ac

REMOTE CONTROL: No

DIMENSIONS: 58.2(w) x 58.2(h) x 13.7(d)mm

WEIGHT: 47g

FEATURES: 4K HDR ready (2160p); dongle that plugs straight into HDMI port; uses smartphone, tablet or computer to queue video but streams over internet itself; plays YouTube 4K HDR content

generally. Amazon Video is an absentee, with content only able to cast by using a laptop or desktop PC/Mac and run through a Chrome browser. This is far from ideal as it limits the stream's resolution. On the other hand, the Ultra is capable of playing YouTube 4K HDR content – no other device offers similar functionality at the moment.

As something a bit different in this company, the Chromecast Ultra offers a compelling alternative – especially for those, perhaps, who have a Netflix subscription and don't have the service running in 4K HDR on their TV already. The device impresses with its form factor and the way it operates, too. However, it's not the all-encompassing media mogul you may be looking for, and works best in conjunction with a laptop/PC.

Now TV Smart Box

Revamped streamer bolsters its appeal with Freeview HD, but misses some VOD big-hitters



BEING PART OF Sky's empire, Now TV has gradually become an excellent option to get paid TV channels for those who cannot or will not install a satellite dish. It offers many of the same channels as the main service, including Sky Atlantic, Sky 1, Sky Sports and Sky Cinema, but streamed over the internet instead. And without a contract to boot.

The Now TV devices also benefit from Sky's large stakehold in set-top box manufacturer Roku, with each generation of streaming device built by the experienced brand. It shows.

Not only do Now TV boxes look like Roku devices, they have similar software and share many apps.

Where the Now TV boxes differ is that they do not host any direct rivals to Sky's streaming offerings. You won't get Netflix, for example, as that competes directly with the monthly Now TV Sky Cinema Pass. Nor will you get Amazon Video, which also competes with the Sky Store digital purchase and rental service.

As a trade-off, the Now TV boxes are far cheaper than others on the market, although the latest, the Now TV Smart Box tested here, is more than twice the price of other variants, by virtue of the inclusion of a digital TV tuner for the first time. It's still a very reasonable £40, though.

That tuner shakes things up a bit. Alongside the different Now TV packages, which you can subscribe to separately and for varying amounts, whether you want the entertainment, sports, kids or film channels

— both live and on demand — you can now watch terrestrial live television, meaning no more swapping between inputs on your TV (an aerial connection is still required). There is no recording functionality, but you can pause and rewind shows.

Recording is almost moot anyway, as terrestrial catch-up services are present; BBC iPlayer, ITV Hub, All 4 and My5. The content is integrated in a new-look and attractive thumbnail-style menu system that attempts to make it easier to find something to watch.

The box has a USB input (plus SD card slot) and claims support for MP4 and MKV video files, amongst others, yet I had no joy getting anything to play (even after a system update). Nor is there a Plex app here. Members of the Now TV forum suggest you can push the box into 'developer mode' to side-load media-playing apps, but that's hardly consumer friendly.

The Sky has its limit

Video output, through the HDMI port, can reach a maximum of 1080p resolution, with 7.1 audio on passthrough. However, it is worth noting that Sky's own streaming services limit the image quality to 720p and stereo. Why? We're not entirely sure. It's likely to be to do with the broadband speeds of its average customer, but we have to say that *Game of Thrones* and the like can look a tad soft, especially on a screen 55in or above.

The one good thing about the Now TV Smart Box's lower resolutions for streaming is

SPECIFICATIONS

MAIN APPS: Now TV content baked into menu system; BBC iPlayer; ITV Hub; All 4; My5 (Demand 5); Spotify
CONNECTIONS: HDMI; Ethernet; microSD card slot; USB 2.0; aerial input
WI-FI: Dual-band 802.11a/b/g/n
REMOTE CONTROL: Yes
DIMENSIONS: 165(w) x 20.5(h) x 165(d)mm
WEIGHT: 432g

FEATURES: 1080p output; 720p Sky video streams; digital TV tuner built-in; pause and rewind live TV; Sky Store support; PPV Sky content incl. movies and sport

that at least you can happily get away with connecting the device through Wi-Fi rather than Ethernet.

Amongst the other media streamers on the market, the Now TV Smart Box is a little underpowered and lacking in features — the absence of third-party video services could be frustrating. Having a Freeview HD tuner built-in is interesting, so it'll appeal to people who don't already have a smart TV and want an all-in-one paid TV alternative, but it's hardly the picture purist's choice. There's no 4K or HDR support here.

We're more excited by the news of Sky Q being available as a non-satellite streaming option come 2018. If nothing else, Now TV and its streaming boxes must be applauded for being the test beds for this.

HOME CINEMA



DESIGN SERVICE

- Award Winning Designer
- Room Design
- Acoustic Design



PRODUCT SUPPLY

- Projectors and Screens
- Audio Visual Equipment
- Control Systems



INSTALLATION

- Experienced Technicians
- Calibration



Roku 3

There are new, supercharged Roku streamers Stateside – yet this remain's the UK flagship



ROKU HAS AN extremely strong heritage in the media streaming business and, in many ways, is the AV nerd's brand of choice. Until recently, that included myself but, in the UK at least, it has fallen behind others in what it offers.

In the US, Roku has an amazing lineup of devices, culminating in flagship models able to stream 4K HDR content (Roku Premiere+ and Roku Ultra). We're yet to get any of those over here, though, and Roku hasn't suggested a time-line for their arrival. We are therefore stuck with boxes that max out at 1080p and are more than a year old.

The Roku 3 is the head of the British family and while it is still an impressive device, it seems somewhat lacking in the face of more capable rivals and its own American cousins.

It is a small, puck-like gizmo that will happily tuck away in a cabinet, something made all the more possible because the supplied remote (which includes a 3.5mm jack for headphones – budget ones are bundled) is not line-of-sight. The box has great-quality dual-band Wi-Fi, too, so rarely drops signal and therefore negates the necessity to hardwire it to the 'net through Ethernet. And it's the simplest device to set up and use amongst its peers (barring the requirement to create a Roku account with associated payment details, so you're ready for pay content if you want).

There are also, thanks to the company's heritage, thousands of channels – Roku's name for apps. And it is by far and away the

best supported device in terms of services on offer. Netflix, Amazon Video, Now TV, BBC iPlayer, ITV Hub, All 4, My5 and Plex are available to be downloaded and installed – the latter making the Roku 3 a decent media player. Google Play Movies and Sky Store are also offered, should you want to rent or buy a movie. And music is served by several apps, including Spotify and TuneIn radio.

Want games? There are heaps available, and the remote's motion sensor comes into play here.

You can even get some niche channels, such as US state-specific amateur wrestling footage or 1920s cartoons. It makes for interesting browsing breaks where you spend a while scrolling through the lineup, chuckling at some of the inanity. You'll always end up focusing on a handful of the bigger platforms in the end, but the diversity is welcome.

The user interface isn't hard to use – and has an impressive search function – but is beginning to look a bit old in comparison to rival devices, being based around a basic grid and text structure.

Waiting for 4K

A fly in the Roku ointment is that streamed image quality is limited to Full HD for services available with 4K HDR content elsewhere. It falls way short of Amazon's Fire TV in this regard.

Audio is perhaps better served, with support for both Dolby Digital and DTS surround sound (up to 7.1) where offered.

And that headphone socket proves useful if you like to watch shows silently in bed while your better half tries to get to sleep.

In fact, that is a significant clue as to the best use for the Roku 3. As a bedroom media streamer it is excellent. Few people have need for 4K output to a bedroom set, and the Wi-Fi connectivity is great.

But Roku really needs to get a wriggle on with bringing its latest set-top boxes to the UK. They'll likely be more expensive, but worth the extra 20 or so quid for improved videophile tricks.

These will put Roku back where it rightly belongs, as the king of media streaming. For now, it's an ageing prince losing the prospect of getting his hands on the crown.

SPECIFICATIONS

MAIN APPS: Netflix; Amazon Video; Now TV; BBC iPlayer; ITV Hub; All 4; My5 (Demand 5); Google Play Movies; Plex; Spotify
CONNECTIONS: HDMI; Ethernet; microSD card slot; USB 2.0
WI-FI: Dual-band 802.11a/b/g/n
REMOTE CONTROL: Yes
DIMENSIONS: 88.9(w) x 25.4(h) x 88.9(d)mm
WEIGHT: 142g

FEATURES: Thousands of apps (channels) available; remote has a headphone socket for quiet watching, doubles as a game controller too; 1080p/7.1 output on HDMI

Final standings

THE FOUR MEDIA streamers we've looked at here are as varied as they come, which sums up the market. There's a dongle, a smart digital TV set-top box, ageing hero and 4K powerhouse, but none exactly do everything we'd want. Because we're picky.

The Roku 3 and Now TV Smart Box – also, ironically, made by Roku – drag behind the other two contenders as they cannot offer the same level of image fidelity. We're living in a 4K world now, so any recommendations for these two have to take that into account. They do both have their own unique functionality, however, so can't be completely discounted: the Roku 3 is an accomplished media player courtesy of Plex support and has a dizzying range of apps (including PPV Sky content); the Now TV Smart Box integrates a Freeview HD tuner for a one-stop shop approach that might be just what you want.

Google's Chromecast Ultra does offer 4K HDR playback, yet has glaring holes in its supported services. And not everyone is comfortable with controlling their viewing from a smartphone or, worse still, laptop.

Fire it up!

Closest to being the dream ticket is the Amazon Fire TV. The new software interface and ability to play both Amazon's own content and Netflix programming in 4K is a great excuse to add one to your home entertainment setup, and beyond that there's a choice of quality content, slick operation and media file playback.

We only wish it added HDR to the mix, and you'll certainly enjoy a greater all-round experience if you tie in the Fire TV to an Amazon Prime subscription (note that there is a video-only option at £5.99 a month that does away with next-day delivery, Amazon Music and cloud storage), but as it stands it's the best device under £100 currently available. It's also often on sale on the retailer's site, so you might even be able to pick one up for a bargain ■



HCC VERDICT

Amazon Fire TV → £80 → www.amazon.co.uk	★★★★★
Google Chromecast Ultra → £70 → www.google.com/chromecast	★★★★★
Now TV Smart Box → £40 → www.nowtv.com	★★★★★
Roku 3 → £80 → www.roku.com	★★★★★

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AV INFO

PRODUCT:

Seven-channel
Atmos/DTS:X
AV receiver

POSITION:

Aventage-class, so
above Yamaha's
RX-V models

PEERS:

Denon AVR-X4300H;
Pioneer SC-LX501

1. Yamaha's Aventage range employs a fifth central foot for chassis stability

2. A generally intuitive handset, but still packed with buttons

3. The RX-A860 is designed for hi-res music streaming, too



Steve May enjoys the flexibility of Yamaha's multiroom 7.1 receiver



Seven channels of film fun

Yamaha's RX-A860 may well be the most versatile AV receiver you can buy for under a grand. This mid-ranger is a seven-channel design that's both Dolby Atmos and DTS:X capable out of the box, but that actually undersells the package. It can be used in a varied array of speaker configurations, and comes with insanely powerful DSP soundfield processing.

If you want to unleash the full allocation of amplification in your main movie room, you can augment your 5.1 layout with two Dolby Atmos upfiring (or dedicated ceiling speakers) for a 5.1.2 layout. To remove that rear channel 'hole' that you often get with a 5.1.2 Dolby Atmos array, Yamaha employs Virtual Rear Speaker processing for soundtracks with 6.1 or 7.1 mixes.

Alternatively, the receiver can drive a classic 7.1 flat-bed surround system with rear and surround speakers... or run a 5.1 base layer with a couple of front presence speakers, if Cinema DSP is more your thing... or you can bi-amp the

main stereo pair... or set up a 5.1 system with a separate stereo feed for Zone 2.

There's even Yamaha's Virtual Cinema Front mode, in which rear speakers are placed at the *front* of the listening room, when you can't physically place them to the rear (perhaps in a large open-plan space). Basically, whatever your needs, this Yamaha will try and accommodate.

In terms of design and build, the RX-A860 is a good-looking, if fussy, box. The fascia, with its 50/50 mirrored façade, looks reasonably contemporary, while dual volume/input knobs and on-body controls add classic



detail. A drop-down door conceals front-facing HDMI, USB and analogue AV inputs.

On the rear you'll find seven more HDMI inputs, plus two outputs. However, only three of these support 4K HDCP 2.2 sources, which is a frustration at this price point. Given that soon all your gear is going to demand HDCP 2.2 compliance, this receiver seems a little hamstrung from the get-go.

There's also all-channel pre-outs, legacy AV support (comprising a couple of component inputs, plus two analogue inputs), phono connectivity for vinyl junkies and four digital audio inputs (two each of optical and coaxial).

Setup niceties are standard. The receiver offers passthrough in Standby, so you don't have to power up your rig for casual TV browsing, and allows you to edit input names and change their onscreen icons. The receiver ships with a typical Yamaha button-fest of an IR remote; alternatively, you can use the Yamaha system control app. Home automation is served via a 12V trigger, IR jacks and RS232 (the receiver is Control4 certified). Networking comes via Ethernet or Wi-Fi, and there's aptX Bluetooth onboard.

Like many new Yamaha AV components, the receiver is also MusicCast enabled. Yamaha's multiroom wireless

ecosystem is already one of the most diverse available, covering a huge range of kit from small wireless speakers to soundbars and music systems. The ability to slot the RX-A860 into this could be a considerable boon.

With MusicCast you can inflict your own dodgy taste in music onto every MusicCast speaker in the house, or if you're feeling more magnanimous, send different tracks to different zones.

'Yamaha's RX-A860 is a versatile AV receiver with insanely powerful DSP soundfield enhancement'

The receiver also supports Apple AirPlay and has an FM radio which presumably is of some interest to someone somewhere. Bluetooth support, incidentally, works both ways. You can stream from a mobile device, or to a pair of Bluetooth headphones for private listening.

Chirp, cheep

Yamaha's YPAO room calibration software can measure up to eight listening positions, although it's unlikely you'll need to do more than four to cover your main seating area. After it's been through the usual chirpy-chirpy-cheep-cheep routine, you then have the option to filter playback with YPAO settings or disable them altogether (I preferred my YPAO on 'Flat'). There's also a decent lip sync tool (from 0 to 500ms) if you have screen latency issues.

All AV receiver manufacturers like to add additional sauce, and for Yamaha it's in the form of Scene presets. These allow you to assign a specific input with a default 3D soundfield.

There are, of course, plenty of presets to choose from. The RX-A860 offers more ways to listen to movies and music than most. Spectacle, Sci-Fi, Adventure, Music Video, Video Game... most options will leave you scratching your head. The Music presets are most numerous, with all manner of halls and clubs measured in the wild and reproduced here in silicon. The results are very much a matter of taste; the Standard setting



presents multichannel or 3D audio unchanged, albeit with some atmospheric reverb. Cinema DSP is typically suggested for when you use front presence speakers (I don't), but if they're not present the receiver will employ some Virtual Speaker chicanery to enlarge the soundstage.

There's even a *faux* surround Silent Cinema listening mode for headphones. To activate it, use your cans with a surround or soundfield mode engaged.

But for all its sonic ingenuity, I suspect most cinephiles are going to opt to listen either Straight (e.g. unsullied) or Dolby Surround. In a post-Atmos world, the latter is particularly interesting as it extracts information from multichannel or two-channel sources to feed into the height layer.

This surround processing is surprisingly effective, and quickly became my *de facto* listening mode. *It Follows* is a creepy eighties-inflected horror yarn with a superb synth score from Disasterpeace. Played out from Amazon Video in 5.1, with Dolby Surround engaged, the AVR was able to cleanly place ambient noises, like incessant cicadas and rain, in the height channels, leaving the theme to throb around the main speakers. The execution is clean and convincing, and the result wonderfully immersive.

DTS's Neural X performs a similar trick. *Hardcore Henry* (Blu-ray) has a bruising, disorientating 5.1 DTS-HD MA mix, but with Neural X processing, you'll hear additional spatial detail, such as when Henry first emerges from his biotank. And when our hero's escape pod smashes to the ground, the soundstage does a complete 360, which is quite something.

Yamaha's receiver is rated only at 80W (into 6 ohms), but certainly has the muscle to flex when it needs too. At moderate levels (around -15dB) there's an effortless smoothness to its delivery which works a treat with everything from the TV mix of *Homeland* to the excesses of *Exodus: Gods and Kings*.

I found the RX-A860 lithe and fast, delivering big transients with relish. *Insurgent* (Blu-ray) has an excellent Dolby Atmos mix. When Triss and Co make a break for it through the forest (Chapter 4), gunfire lights up the soundstage, rear and height channels working seamlessly in tandem; when their escape train rushes past, the RX-A860 surprises with the depth and tightness of its arrival. It has the assurance about its presentation that you'd expect from a seven-channel model at this price point.

The receiver is a fine partner for music, with sweet Burr Brown DACs employed on all channels. High-res audio is at

SPECIFICATIONS

DOLBY ATMOS: Yes **DTS:X:** Yes **THX:** No **MULTICHANNEL INPUT:** No. **MULTICHANNEL PRE-OUT:** Yes. 7.2-channel phono outputs **MULTICHANNEL OUTPUT (CLAIMED):** 7 x 80W (into 6 ohms, 20Hz-20kHz, two channels driven) **MULTIROOM:** Yes. Two zones, plus MusicCast **AV INPUTS:** 4 x digital audio inputs (2 x coaxial, 2 x optical); 2 x composite **HDMI:** Yes. 8 x inputs; 2 x outputs **COMPONENT VIDEO:** Yes. 2 x inputs; 1 x output **VIDEO UPSCALING:** Yes. To 4K/60 **DIMENSIONS:** 435(w) x 171(h) x 382(d)mm **WEIGHT:** 10.5kg

FEATURES: MusicCast multiroom compatible; Apple OS and Android control apps; YPAO multi-point measurement room EQ; Ethernet; Wi-Fi; USB; AirPlay; Bluetooth; Virtual Presence Speaker/ Virtual Surround Back Speaker; Cinema DSP; AVENTAGE design; Spotify Connect; Scene presets; HDCP 2.2 on three HDMI inputs/one output

PARTNER WITH



YAMAHA WX-030: These compact multiroom speakers are an affordable addition (£150) to the RX-A860, allowing you to set up wireless multiroom zones that can channel whatever you're watching in your cinema room.

home here: file compatibility includes DSD (up to 5.6MHz) and FLAC 192kHz/24-bit. There's also support for Spotify Connect when you need a convenient hookup. The RX-A860's smooth yet powerful sound, and ear for high-frequency details, works well with tunes.

Overall, it's an unapologetic entertainer. My main disappointment is the half-hearted provision of 4K HDCP 2.2 inputs, which seems somewhat frugal. For a receiver with mid-range topography, it sounds effortlessly sophisticated and capable. The sheer variety and versatility of the sound processing options, from Virtual Speaker creation and Cinema DSP modes to its complement of 3D decoders, make this a great fit whatever your listening environment. If you're looking for nothing more than a seven-channel AVR, this has to be considered ■

HCC VERDICT



Yamaha RX-A860

→ £900 → www.uk.yamaha.com

WE SAY: This versatile Dolby Atmos AVR offers a huge variety of listening modes, and sounds explosive with high-octane soundtracks. HDMI HDCP 2.2 provision is a tad limited, though.



4. Unlike its RX-A660 baby brother, this unit offers a phono stage input for vinyl junkies



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Half-pint HD PJ

This easy-to-move projector can throw a big image into a small space, says **Steve May**. You just need to look past its 720p resolution and focus on the fun



WE'VE SEEN PLENTY of pocket-sized projectors over the years, but few actually deliver a performance able to satisfy the average AV enthusiast. LG hopes to change all that with this 720p Minibeam UST (Ultra Short Throw) model.

Resolution may be limited to 720p, but this DLP LED projector brags about a brightness of 1,450 Lumens and a contrast ratio of 10,000:1 – impressive figures for something not much bigger than a Charlie Bigham ready meal. The PH450UG measures just 13.2cm wide and 8cm high. And weighing just 1.1kg, it's easy to carry from one room to another.

To get up and running there's a single HDMI input, which is MHL-enabled for smartphone hookup, plus a USB reader and mini headphone jack. Focusing is manual, via a wheel above the inputs.

The unit has a pair of forward-facing

speakers. While these could politely be described as pathetic, thanks to a power output of just 2 x 1W, the PH450UG can also stream to Bluetooth speakers. I partnered it with a pair of Bluetooth headphones, and immediately had a much more rewarding audio experience.

Aiding its transportable nature is an onboard battery. This runs for around two-and-a-half hours when fully charged, an act which itself takes three hours.

Ultra short throw projectors are low maintenance when it comes to setup. Basically you need only sit it in front of the (white) wall you want to use as a screen, and then shuffle it backwards or forwards to achieve the desired image size. At 7.5cm the PH450UG will cast a 40in picture; step out to 16cm from the wall and it'll create a 50in image.

At these sizes, there's plenty of depth and vibrancy to its visuals. Of course, it's a snap to make larger. The temptation is there to go larger still. Want a 132in image to fill a wall? Just move the PJ back to 60cm or so. But the larger you make the image, the more obvious the pixel grid structure becomes – the price of that 1,280 x 720 resolution.

Users can choose from LG's picture presets, including Standard, Vivid, Cinema, Sport, Game and two Expert (ISF) modes, which I can't ever imagine being calibrated by a professional. I'd suggest sticking to Standard for the best all-round performance, as this makes good use of the PJ's light output without being excessively bright.

The entertainer

No 720p beamer can ever really convince as either an alternative to a modern flatscreen TV or a proper Full HD projector, but this LG does

SPECIFICATIONS

3D: Yes. DLP Link 3D (no glasses supplied)
4K: No. 1,280 x 720 resolution **HDR:** No
CONNECTIONS: HDMI input (v1.4) with MHL; USB input; headphone jack
BRIGHTNESS (CLAIMED): 1,450 Lumens
CONTRAST RATIO (CLAIMED): 10,000:1
DIMENSIONS: 132(w) x 80.5(h) x 200(d)mm
WEIGHT: 1.1kg

FEATURES: LED light engine; claimed lamp life of 30,000 hours in Eco mode; claimed fan noise of 23dB; Standard, Vivid, Cinema, Sport, Game and two Expert (ISF) modes; throw ratio 1.5:1; Miracast; Bluetooth

offer something fundamentally different. As a portable display it has a lot of appeal, both as a kids' entertainer and as an impromptu display for sports events or gaming sessions.

Animation looks particularly nice. Top-draw anime *The Tale of the Princess Kaguya* (Sky Q via Film 4 HD), with its hand-drawn water-colour styling, looks terrific, the pastel hues perfectly suiting the LED colour gamut. The more vibrant lunacy of *LEGO Star Wars: Droids Tales* (Disney XD HD), is colour-rich and engaging – Darth Vader's armour is black but nuanced and light sabres give off a convincing glow. Given the size and cool-running nature of the PH450UG, I'd have no qualms about popping one into a child's bedroom. Or possibly even my bedroom, thinking about it.

In addition to HDMI and USB, you can also mirror a compatible Android mobile with the device, using Screen Share (found in the Input listing). Screen casting from a mobile is an easy way to share JPEG stills, and you can also mirror video apps. However, when watching mirrored YouTube, the audio from the projector was dramatically out of sync with the onscreen image. So much so that I'd say it was unusable. Stick to perusing photo galleries.

Convenience first

The LG PH450UG is a lot of fun. Its native 720p resolution is the obvious limiting factor when it comes to image quality and size, but the sheer convenience of this Minibeam model allows anyone to hold a home theatre night in the smallest Hobbit hole. If your AV armoury has been missing an instant, carry-everywhere video-chucker, then this is a good option to check out ■

AV INFO

PRODUCT: Portable (battery-powered) DLP LED projector

POSITION: When it comes to LG's UST PJ line, this is mid-range

PEERS: Optoma GT5000; Acer C205

HCC VERDICT



LG Minibeam UST PH450UG

→ £530 → www.lg.com/uk

WE SAY: This versatile LED portable PJ doesn't offer leading-edge video quality, but for instant bigscreen action with little fuss it's a winner.

One For All HP1030

Martin Pipe tries out wireless 'phones that let him listen to the TV while weeding the garden

LOOKING FORWARD TO watching a movie late at night when other members of the household expect to be sleeping? This is where a pair of headphones are ideal, especially if they're minimal-leakage 'circumaural' types like this product from the brand that made its name with universal remote controls.

To seal the deal, One For All's £50 HP1030s are wireless, rechargeable and employ something called Voice Clear Technology for improved speech intelligibility.

The headphones sit in a cradle when not in use, topping up the battery. Fully charged, the supplied

AAA NiMH cells provide up to 12 hours of listening. Within the cradle lives the radio transmitter (864MHz analogue FM, maximum range 100m), which can be switched to operate on one of three specific frequencies. Sources with phono or 3.5mm outputs can be connected.

The reasonably comfy headphones have volume up/down buttons and a scan mode that locks into the transmitter. Scanning is essential after changing transmitter frequency to, for example, combat interference. Several pairs of headphones can be simultaneously served by one cradle.



I was impressed with the range. 20m into my garden, reception was still good. The sound emanating from the headphones' 40mm drivers is acceptable, but far from hi-fi. The character is rather nasal, presumably due to the emphasis on speech. This is particularly noticeable with music, which also reveals a splashy treble and a poorly defined low-end.

On the other hand, dialogue was never a problem, barring some sibilance, and there were no latency issues. However, unless the source has plenty of drive a faint hiss is audible, and there were odd bursts of occasional noise.

For all my audiophile sneering, the HP1030s ultimately meet their brief ■

HCC VERDICT



One For All HP1030

→ £50 → www.oneforall.co.uk

WWW.CURRYS.CO.UK/£250

JVC LT-42C550

This Full HD TV will do the job, but is the job worth doing? **Steve May** reports

THIS 42IN LCD TV sold under the JVC brand by Currys and PC World might well catch your eye. It's unapologetically basic, there's no connected services and screen resolution is only 1080p, but given the price tag the weak-willed could be tempted, especially if they have second rooms to kit out.

Design is certainly inoffensive. A thin black gloss plastic bezel sits on a neat wireframe pedestal. There are three HDMI inputs, one of which supports ARC for soundbar use, plus analogue component/composite AV, SCART, CI slot, VGA PC input, digital audio output and USB. There's also Ethernet, a requirement of the Freeview HD spec.

Features of the JVC include timeshifting onto a USB hard drive, plus a USB media player; file compatibility here is good.

Budget bugbears

If your image quality expectations are low, you may be initially surprised. Pictures are superficially sharp. But there's plenty here to betray this panel's budget nature.

The set fails to muster a genuine black, which means images can look washed out. Colours also look a tad unnatural, with reds appearing orangey. Motion blur is commonplace, too.

All the preset modes bar User suffer from excessive edge enhancement which can't be altered. User allows you to dial back the Sharpness to remove unwanted ringing.

Audio performance holds no surprises: it's indefensibly poor, with a monophonic and underpowered presentation.

Ultimately, this 42in cheapie is only worth buying if your need for functionality pips performance. This set is fine for putting sound and pictures in the corner of a room, just don't expect to enjoy watching it ■

HCC VERDICT



JVC LT-42C550

→ £250 → www.currys.co.uk



Slim bezel, slim stand

Entertainment for your ears

The DP-X1 is Onkyo's take on the personal hi-res audio player, but as **Ed Selley** notes, there's more to it than just a measured performance with tunes

NOT CONTENT WITH making an AV receiver for all occasions, Onkyo has been busy beefing up its music credentials over the last few years. It's curated its own hi-res music portal (Onkyo Music), launched headphones in collaboration with Iron Maiden and courted two-channel love with a growing range of hi-fi separates. Now comes its DP-X1 personal audio player, which promises to deliver high-quality listening on the go and give your smartphone a break. If you're the kind of technophile who's amassed a hi-res library (FLAC, WAV, AIFF, ALAC, DSD, etc) but wants to set it free from the confines of your home cinema, this pocket-sized gizmo is for you.

The DP-X1 has 32GB of internal memory, expandable via a pair of microSD card slots to 432GB. Unlike a number of rivals, the player is built around an Android operating system and supports (most) purchases from the Google Play store, meaning that it works perfectly well as a device for on-demand video and catchup TV. If all this sounds a bit familiar, there's a reason – the DP-X1 is a close relative of the Pioneer XDP-100R I looked at in *HCC* #256, and shares the same 1,280 x 720 resolution screen.

On balance

There are key differences between the two, though. The Onkyo DP-X1 is a twin DAC unit and supports DSD upsampling in real time, which allows you to notionally boost the performance of bog-standard lossless material. There is also a 2.5mm balanced

audio jack for suitably equipped headphones and earphones.

And the casework has been changed. The DP-X1 loses the onboard speaker – although who uses such a thing on a device of this nature is open to question – and the curious grab handle protrusion at the top of the Pioneer



The DP-X1 uses a 4.7in, 1,280 x 720 screen

model is absent here also. The metalwork of the player is gorgeous, too – this is a device that looks and feels really rather lovely.

The performance of the DP-X1 is, perhaps unsurprisingly, similar to the Pioneer XDP-100R (don't forget that the two Japanese brands are now part of the same AV family) but, again, there are significant differences. The Onkyo has shipped from the outset without the volume limiter that initially hampered the Pioneer, but even allowing for this, it feels more powerful and assured in its music playback. There is a sense of space and three-dimensionality to the Onkyo that is deeply impressive – a 16-bit/44.1kHz rip of Underworld's *Everything Everything* live album evokes the sonic characteristics of

SPECIFICATIONS

MEMORY: 32GB (432GB via SD card)
SCREEN SIZE/RESOLUTION: 4.7in/1,280 x 720
AUDIO FORMATS: MP3/AAC; DSD (DSF/DSDIFF – 2.8/3/5.6/6/11.2MHz); FLAC/ALAC/WAV/AIFF (up to 384kHz); OggVorbis; MQA
VIDEO FORMATS: H.263; H.264/AVC/MPEG-4; H.265/HEVC; VP9
CONNECTIONS: 3.5mm headphone output; 2.5mm balanced headphone output; microUSB (power and data transfer)
DIMENSIONS: 75.9(w) x 129(h) x 12.7(d)mm
WEIGHT: 203g

FEATURES: Android 5.1.1; touchscreen; aptX Bluetooth; Wi-Fi; claimed battery life of 15 hours+ (variable due to audio format); user and preset EQ; DSD conversion; low/normal/high gain setting; 2 x microSD card slots

the venue and delivers on the scale and fury of the performance on stage. And when given something small scale and delicate like Tori Amos' *Pretty Good Year*, it effortlessly changes gear, producing a sound that cossets and envelopes and allows you to revel in the naturalness and realism of this piano track. It's not wrong-footed by any genre.

Some of the more sophisticated EQ and upsampling features of the DP-X1 are only available to music stored locally and can't be applied to streaming apps, but this doesn't stop the DP-X1 sounding very good indeed with material on Tidal and Spotify (the player also supports the MQA format of the former). One irritant is that most installed apps will only download to the internal memory rather than SD card.

The player is an effective partner for video. In comparison to some smartphones hitting the market with higher resolutions, the display might seem a little on the crude side, but it proffers realistic colouring and sufficient detail to be perfectly watchable. Catching up with *Westworld* via Sky Go sees the DP-X1 handling dark scenes well and the decoding horsepower it possesses does a fine job with the ephemeral soundtrack. As a means of livening up a dull commute it certainly works.

And it's perhaps the Onkyo's flexibility that is its greatest asset. With some rivals using clunky and closed-down operating systems, the ability to use the DP-X1 as a smart device gives it an edge, while the extra cost over the Pioneer XDP-100R is borne out by a more confident audio performance and neater chassis design that lends it a high-quality feel. If you're in this market, it's a must-audition ■

AV INFO

PRODUCT: Portable hi-res audio player/Android smart device

POSITION: The DP-X1 is Onkyo's debut DAP (Digital Audio Player)

PEERS: Pioneer XDP-100R; Sony NWZ-ZX1

HCC VERDICT

★★★★★

Onkyo DP-X1

→ £600 → www.uk.onkyo.com/en

WE SAY: A brilliant all-round DAP. Enjoyable audio performance matched with impressive flexibility and bags of features. Not cheap, though.

LG SH6

No sub here, but this cinematic soundbar combines power with precision, says **Steve May**

LG'S SH6 IS a soundbar that handles bass with gusto. A welcome trick, as this model drops the wireless subwoofer the brand supplies with its 'bars elsewhere.

Reassuringly well made, it offers a helpful text display on the front fascia, which confirms source, volume and so on. It measures just over a metre wide, and weighs 5.3kg.

Two HDMI sockets (one input, one ARC-enabled output) are useful, and are joined by a 3.5mm input, digital optical audio and Ethernet. There's also an IR repeater for if you want to hide the 'bar away. Google Cast is built in, too – you can stream from a mobile direct to the SH6 with any Cast-enabled app. There's also Wi-Fi and Bluetooth support, plus integration with LG's multiroom MusicFlow ecosystem, where it performs and syncs without issue.

The soundbar ships with a dumpy IR controller, but gains extra functionality through LG's companion control app.



The 'bar uses six midbass drivers and two tweeters

Performance is outstanding considering the price. The SH6 delivers a wall of well-defined sound, with crisp definition and excellent mid-bass. The speaker may not have Dolby Atmos or surround pretensions, but the Cinema mode adds depth and width.

Its sonic output, rated at 150W, is prodigious. Intrigued, I plumbed the soundbar into my theatre room, sitting the SH6 beneath a 120in screen. I fully expected it to sound confined and small in this context, but that's not what happened at all. Sure, I was missing wraparound effects and genuinely deep LFE, but the presentation was entirely entertaining, with punch and scale.

The SH6 does everything you might reasonably expect of a mid-priced soundbar, and doesn't drop the ball when it comes to musicality. Consider it a genuine bargain buy ■

HCC VERDICT ★★★★★

LG SH6
→ £260 → www.lg.com/uk

WWW.ONEFORALL.CO.UK/£30

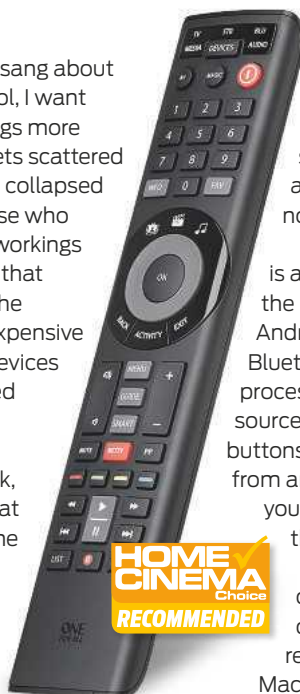
One For All Smart Control 5

Adrian Justins finds a budget universal remote has what it takes to get him singing

AS FREDDIE MERCURY once sang about the tyranny of the remote control, I want to break free. There are few things more irritating than numerous handsets scattered about a media room like a giant collapsed Jenga tower, particularly for those who don't understand the complex workings of your AV setup. But I can't say that I had especially high hopes for the Smart Control 5, a relatively inexpensive model which can operate five devices and boasts of having a dedicated NETTV button.

From a design perspective the unit takes a perfunctory tack, looking much like the zapper that came with your TV. That said, the build quality is decent and the low-profile, rubberised buttons are all a good size, evenly

The remote supports user Macros



spaced and nicely responsive. It's a sizeable (21cm long) slab but is well balanced so that single-handed operation using a thumb to hit the keys is not difficult.

Setting up the Smart Control 5 is a doddle, particularly if you use the Easy Setup app (iOS and Android), which connects via Bluetooth. Alternatively, it's the usual process of aiming the remote at your source/audio gear and hitting a few buttons until it registers it, unless it's from an esoteric brand in which case you'll need to find a specific code in the One For All manual.

Missing keys (the Tools button on my TV remote, for example) can be mapped on to any redundant buttons on the handset. Macros can be added, too, but they

can't take account of delays in powering up and displaying options. This, along with the lack of a backlight, is the Smart Control 5's only real weakness.

The more I used it, the more I realised how well the remote works. Three Activity buttons (TV, Movies and Music) situated in the centre of the zapper combine brilliantly with the main device keys, allowing seamless control of all devices being used for a particular activity. That NETTV button, by the way, is akin to the now-common Netflix key on a TV remote, but can, of course, be linked to any VOD service.

For £30 this is hard to find fault with. Freddie wasn't wrong: I've fallen in love, and this time I know it's for real... ■

HCC VERDICT ★★★★★

One For All Smart Control 5
→ £30 → www.oneforall.co.uk

WIN!

A Tannoy TFX 5.1 speaker system

THIS ISSUE WE'VE teamed up with loudspeaker maker Tannoy to give away its TFX 5.1 compact sub/sat speaker system, ideal for living room setups and discreet home cinema. To be in with a chance of winning just answer the question below correctly.

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The accompanying down-firing subwoofer uses an 8in paper cone woofer and 100W onboard amplifier to deliver low-end effects and bass details.

Set to work with a Blu-ray soundtrack, the TFX 5.1 creates a soundfield that belies its form factor, with crisp high frequencies courtesy of its dedicated tweeters blending well with an authoritative mid-range, strong dialogue reproduction and speedy, robust bass. This is a cohesive, punchy system that retains its character as you crank up the volume dial.

An ideal partner for a flatscreen TV/BD player setup, the TFX 5.1 could be yours. Good luck! ■



For info on Tannoy's range of home cinema speakers and more, head to www.tannoy.com

Be in with a chance of winning the Tannoy TFX 5.1 speaker package by answering the following film-related question:

Q: What's the correct title of the 1971 George Lucas sci-fi movie?

A) THX 1138 B) TFX 1138 C) SFX 1138

HOW TO ENTER: Simply email your answer (either A, B or C) to competitions@homecinemachoice.com with the subject line 'Tannoy'. You must include your name, address and contact telephone number.

THE CLOSING DATE for this competition is March 31, 2017. Please read the terms and conditions (opposite) before sending in your entry.

Competition rules

1. The first entry drawn at random will win the prize. **2.** Only one entry per person/household; multiple entries will be discarded. **3.** Entrants from the UK only. **4.** Employees of MyTimeMedia Ltd and companies supplying competition prizes are not eligible to enter this competition. **5.** Please ensure your personal details are correct, as they will be used to contact you if you win. **6.** No alternatives, cash or otherwise, will be offered to the winner as prizes. **7.** The editor's decision is final. **8.** Comp winners' info available upon request. **9.** The closing date for entries is March 31, 2017.

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Digital Copy

As Samsung changes its TV branding from SUHD to QLED and DVB UHD-1 Phase 2 gears up for HLG, HFR and NGA, **Mark Craven** reckons the AV industry needs to drop the acronyms PDQ

I THINK THE Shift key on my computer keyboard is close to failure. Not surprising, really, as each day I write about a home entertainment world where everything is reduced to snappy capital letters, to an easy-to-remember acronym. So much of our tech these days is abbreviated that I'm considering just hitting CAPS LOCK and being done with it.

Presumably there are reasons. Firstly, it will save on ink costs if every user manual for every bit of hardware with a High-Definition Multimedia Interface socket just says 'HDMI.' And, with HDMI, it's much less of a mouthful, although this doesn't seem to bother people who say 'double-you-double-you-double-you dot' rather than 'world wide web.'

But really these acronyms are there to comfort cautious consumers, and help retail staff do their job. The TV seller can explain that model X offers HLG HDR, knowing that the buyer will be happy that it does and not actually ask what any of those letters mean. **Because no one outside of you, John Archer and the people who built the TV in the first place knows what they mean.**

In our CES report last issue, Panasonic honcho David Preece hit the nail on the capital letter coffin. Downplaying confusion over differing HDR formats, he suggested it's the TV terminology being employed that's a problem: 'OLED, QLED, ULED – that's what's going to be confusing,' he said candidly. (Of those three the third is my personal favourite, when you discover that the U stands for 'Ultra'. It's a telly, but with go-faster stripes!).

'Tackling fuel...'

So here's a member of the consumer electronics industry suggesting that branding conventions are

in danger of confusing customers. The problem is, I can't imagine anything seriously being done to tackle it. Instead, we're just going to end up with more acronyms, and it's down to muggins here to navigate through them all.

Got a pen and paper handy? Okay, here are some pointers. If you see an H, it almost certainly stands for 'High', as in high-def, high dynamic range and high frame rate. Except in HLG, which stands for Hybrid Log-Gamma, which is such a technically in-depth term it should be canned right now.

If you see an S, it stands for 'Super', as in SACD, unless it's a Samsung SUHD TV, where the S doesn't actually mean anything at all. All we know is that it doesn't stand for Super, as that would make it hard to differentiate between LG's Super UHD TVs...

A always stands for 'Audio', except when you're talking about Master Quality Authenticated (MQA), and V always stands for 'Video', except when you're talking about Digital Versatile Disc (DVD). And, lastly, Sony's BRAVIA doesn't mean anything whatsoever.

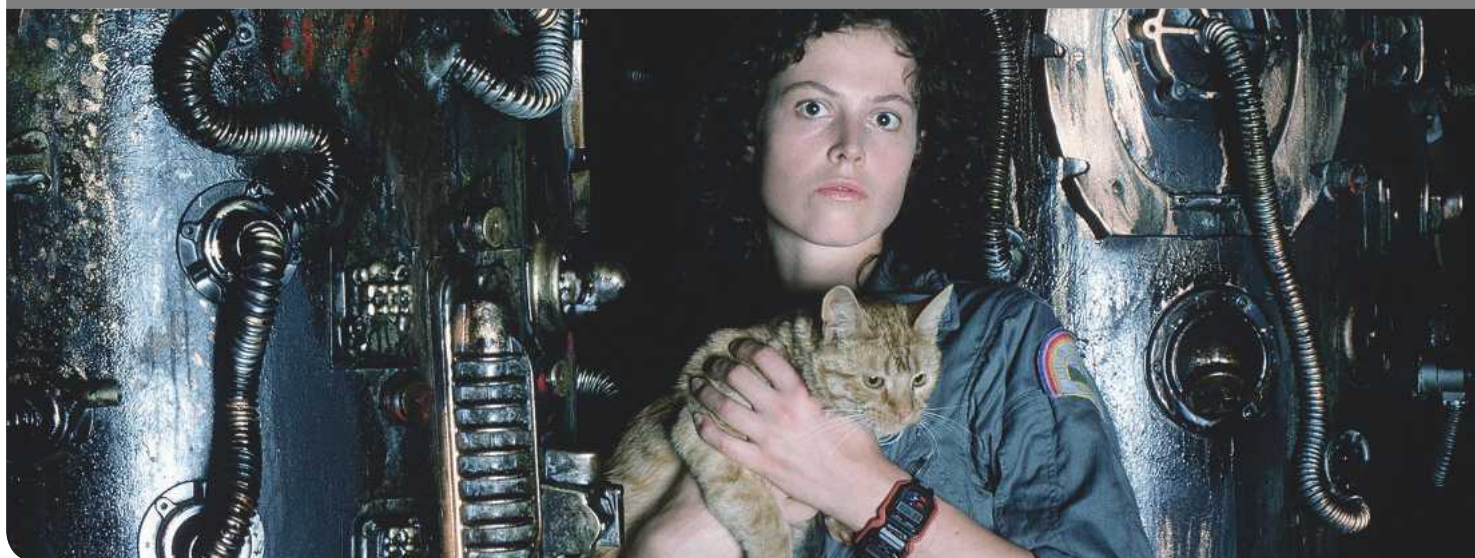
For me, tech naming peaked with LaserVision and plasma and has gone downhill ever since. Both were cool and futuristic-sounding, yet helped you roughly get your head around what the product was doing. I'd like to see a return to such happy, carefree days, but the fact that 'Blu-ray' as a brand name apparently didn't go down well with Joe and Joanna Public might have put an end to such behaviour. Instead we're in a mad-hatter wonderland where next-generation audio has been mystified as 'NGA'.

Still, stiff upper lip and all that. I will continue hammering away at my keyboard and committing new terminology to memory. Just don't ask me what SCART stands for. I'm sorry, I haven't a clue ■

Are you up-to-speed with tech terms? Or confused? Let us know: email letters@homecinemachoice.com

A perpetually baffled **Mark Craven** is looking forward to seeing NGA in concert performing rap classic *Straight Outta Compton*





Film Fanatic

A dog may be man's best buddy, but when it comes to movies **Anton van Beek** believes that our feline friends are far more fascinating...

THEY SAY THAT there are two types of people in the world: dog lovers and cat lovers. If this is true (and to be honest I've no idea who 'they' are or why their opinions on the animal kingdom carry so much weight) then I definitely belong to the latter group. That's not to say that I don't like dogs. I'm quite fond of them, especially the bigger breeds; the small yappy types... less so.

What does any of this have to do with movies, you ask? Well, I'm also a big fan of cats on film. And I'm not talking about the 'funny' kitten videos that clog up the internet – I'm talking about cats turning up in films that might actually see the inside of a cinema.

The depiction of cats in most movies is diametrically opposed to how dogs are treated. The latter are generally seen to be loving and loyal companions (okay, I'm ignoring *Cujo* at this point), while movie moggies tend to be far more mischievous, if not downright malicious.

That cinematic cats are shown to prefer the company of criminal masterminds in swivelling chairs, or spend a lot of their time scaring the hell out of people in horror films, doesn't bother me. After all, cats really are **unpredictable little psychopaths who will shred your skin if you so much as attempt to tickle their tummy**. That's just something you have to accept as a cat owner. And it's something that the film industry has nailed.

Take a look, for instance, at what must surely be every home cinema fan's favourite cat: Jones. This ginger tomcat was the clear breakout star of Ridley Scott's sci-fi horror *Alien* and (spoiler alert for a 38-year-old film) is one of only two members of the Nostromo's crew to survive the gruesome events of the movie. Yet as cute and cuddly as he seems, once the xenomorph is loose on the craft this kitty

spends the rest of his screen time either leading people directly to their death (R.I.P. Brett) or causing them to risk their life in order to save his. Compare that to what happens to the dog in *Alien³*...

Terrifying tabby

Jones is only the tip of this evil furry pyramid. What about the puss that gives away Harry Lime's hiding place in *The Third Man*? Or the flesh-eating black cats from *Team America: World Police*? Let alone the terrifying tabby that torments the tiny protagonist in *The Incredible Shrinking Man*.

And it's in the horror genre where my favourite cats on film can be found. There are the zombie cats that pop up in *Pet Semetary* and *Re-Animator*, plus the murderous moggies from Lucio Fulci's *The Black Cat* and *The Uncanny* (a hilarious anthology of three tales of feline fury). *The Tomb of Ligeia*, *Hausu*, *Fallen*, *Kuroneko*, *Scary Movie 2*, *Stagefright*, *Uninvited*... the list of perilous pussies goes on and on.

This is why I'm torn by new flick *A Streetcat Named Bob*, just released on Blu-ray. Directed by Roger Spottiswoode (*Tomorrow Never Dies*, *Air America*) and based on a heartwarming true story, it could be the cat movie to rival dog-centric fare like *Marley and Me*. Which is exactly what I don't want. Yes, it's real-life, but let dog lovers keep their films about pups rescuing little kids from wells and waiting patiently for their owners at train stations. I'd much rather watch a 1988 fright flick about a mutated moggy bothering George Kennedy on a luxury yacht.

Yes, I'm aware that I've just written a column about cats. But when you watch as many films as I do, your brain starts to go a little funny. And now I'm off for a bowl of Whiskas ■

*What's your favourite killer movie animal?
Let us know: email letters@homecinemachoice.com*

Anton van Beek really hopes that Neill Blomkamp's *Alien 5* will focus on Jones' adventures after Ripley left him on Gateway Station in *Aliens*



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In The Mix

Jon Thompson reveals that one of the reasons for the wait for Dolby Vision Blu-ray is the pesky discs themselves. With high bit-rates in play, space is at a premium...

IF YOU OWN a UHD Blu-ray player and a mid-to-high-end 4K TV you will be familiar with High Dynamic Range (HDR), in this instance HDR 10. You'll also probably be aware that Dolby Vision, a rival, premium HDR format, is scheduled to launch this year on UHD BD. I wrote about this last issue, but now I'm back to fill out some details and tell you why you should be excited...

The way Dolby Vision will work on UHD Blu-ray is with HDR 10 as a base layer and Dolby Vision info as an extension. A display reconstructs the 12-bit Dolby Vision version from data sitting on top of the HDR 10 (10-bit) layer, meaning that studios only need to make one UHD Blu-ray disc. Put the disc in a non-Dolby Vision player and it will just playback in HDR 10. Play it into a non-Dolby Vision display, but one capable of HDR 10, and it will also just playback in HDR 10. **So non-adopters won't have a problem**, and studios can continue to sell just a single 4K disc for a title.

As well as the players and TVs announced recently, other things needed to come on stream for such high-quality UHD Blu-ray discs to happen. Traditionally Blu-ray used 50GB dual-layer discs; capacities grew with the launch of UHD Blu-ray, with the base level being the 66GB BD. This has a maximum bit rate of 108Mbps, but 100GB and 128GB variants offer a maximum 128Mbps. By comparison, a BD50 can only go to 82Mbps.

That 100GB platter is needed for Dolby Vision Ultra HD content as at the bit-rate the format requires, a 66GB BD (which all UHD discs use at the moment) would only have 114 minutes of movie time on it, which is simply not long enough for the average two-hour flick. Luckily, at the end of 2016 mass-production of these discs for commercial use began.

So with DV-compatible players and the medium to store the content ready we just need movies. These, too, are coming. It's all good to go in the Dolby Vision camp.

It's the dynamic range, stupid

I'm always saying that resolution is not as important as dynamic range in creating a realistic picture (my colleague Steve May may argue – see p122). Dynamic range is what gives a picture its life, and the better the dynamic range, the more realistic it is: the eye is more sensitive to dynamic range than to resolution. The reason celluloid film works so well is that it's a high dynamic range medium, with a perceived capture bit-depth still greater than any digital system. The key to Dolby Vision over HDR 10 is not just the higher bit depth but its frame-by-frame dynamic picture analysis. HDR 10 only has picture analysis of the peak brightness for the entire movie, which is a bit meaningless and with TVs not bright enough to reproduce the image correctly, you can end up with a dark muddy picture that has clipped highlights. This is why I think Dolby Vision has serious legs. Hybrid Log-Gamma, on the other hand, which is being adopted by broadcasters, is simple and effective but overall very crude, giving to my eyes an electronic-looking HDR.

Wonderfully-shot films such as my demo-fave *John Wick* (pictured) should be real showcases to what HDR can do – if graded by their creative teams with a major improvement in total dynamic range and much more subtle colour. Dolby Vision will give them that opportunity. I only hope rumours of a double-disc release with *John Wick: Chapter 2* in DV later this year are true ■

*Have you got a favourite 4K/HDR demo disc?
Let us know: email letters@homecinemachoice.com*

When he's not in his screening room, **Jon Thompson** tweets about Hollywood gossip, movie-making and digital mastering at [@johnnyfocal](https://twitter.com/johnnyfocal)



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Feedback

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Is HDR worth it?

Steve May's article on HDR [HCC #268] struck a chord with me, as I too have so far been completely underwhelmed by both HDR and 4K. Agreed, 4K provides better resolution and I thought HDR was intended to provide a better tonal range of a scene in all lighting conditions (as per your eyes). However, the increased resolution doesn't have a 'wow' factor when viewing a 65in OLED screen at 3.5m, and while the implementation of HDR on OLED screens does offer an improvement, the same on LCD/LED screens seems to be more intent on burning your eyes out than providing a worthwhile experience. Has anyone queried the power consumption of these TVs at full chat in HDR mode?

I've been in the TV industry for over 60 years and have tended to embrace 'worthwhile' improvements, such as the Pioneer Kuro plasma TV, DVD and Blu-ray. About five years ago I looked at 3D on standard LCD TVs and concluded that passive 3D was the better of the two systems, being simpler, cheaper, with less brightness loss and the cleanest results with minimal crosstalk problems.

At first the advent of 4K TVs, particularly OLED, looked more promising for 3D, but then the stupid fad for curved screens took over until mid-2015 when LG finally produced a flat 4K OLED 65in TV (with HDR). Even then, it took some effort to get a sensible demo and I was delighted to find that passive 3D on this TV was brilliant (no noticeable crosstalk) with excellent dark scene performance. There was also a separate set of 'twiddles' for 3D mode, so you could largely compensate for the adverse effect of the 3D glasses. So at long last this was a 3DTV well worth having – pity it don't come sooner. Yes, I know the vertical resolution is halved with passive 3D, but I think our eyes tend be more aware of a drop in horizontal resolution and as that is unaffected, the picture seems just as sharp as 2D Blu-ray.

So, is it worth me going for a 4K player with HDR, but no 4K 3D? Quite frankly no, it's definitely not worth the significant cost of 'upgrading' without 4K 3D.

John Millns

Mark Craven replies: The 3D vs 4K debate is going to rumble on, isn't it? Good news for those TV companies still offering both...



The 4K format doesn't cater for stereoscopic video

If you own an LG 4K OLED that supports both 3D and HDR, then why not get a 4K Blu-ray player? You can then enjoy all formats available.

My personal take on HDR is perhaps similar to Steve May's, but I must stick up for it and say I've had some wonderful HDR experiences. There are, however, 'good' discs and 'bad' discs, more so than I would have imagined a year ago. Both *The Magnificent Seven* and *Inferno* (reviewed in this issue) employ HDR grading which noticeably opens out the image but looks realistic – the accompanying Full HD releases lack the same visual impact.

Disney's Dolby dithering

There's something I don't understand. As Dolby Atmos has become so big I've read Disney BD reviews in your magazine and I'm sure I've read that Disney is not using Atmos on its releases at the moment. But at Christmas I went to see *Rogue One: A Star Wars Story* at a West End IMAX theatre, and at the end of the credits the Dolby Atmos logo appeared.

Does this mean the company is onboard with Atmos but only using it in cinemas and not for Blu-ray releases? Lee, via email

Anton van Beek: In a word, yes. Disney has yet to release any Dolby Atmos-encoded Blu-rays, but theatrically has been using the format on everything from *Guardians of the Galaxy* to *Moana*. Rumours persist that the studio has been waiting for Dolby Vision UHD discs before it starts offering Atmos audio for home consumption.



Moana showed in cinemas in Dolby Atmos

Power consumption of TVs when in 'full-chat' HDR mode is certainly going to raise electricity bills, although judging from hooking up a TV through a standard energy meter it varies wildly from scene to scene. Research in the US conducted in 2015 estimated a 30 per cent increase in typical power consumption from a 4K TV. I can only imagine that figure might be higher as new TVs get brighter.

The need for speed

I don't watch BBC iPlayer very often because I record everything on my Humax PVR, but decided to watch something I had missed, and the 4K trial demo screen came up.

I only have a basic copper wire phone line with my broadband and I was sure I needed a super-fast fibre optic connection. Anyway, I thought, let's have a go. And it worked. A fantastic picture, an obvious step-up from HD. So I am confused. Can you enlighten me? *David Simpson, Lincoln*

Martin Pipe replies: While 'super-fast' broadband is always preferable when you're planning to stream HD and 4K video, there are no hard and fast rules.

At present, fibre-optic refers to how 'street boxes' (cabinets which manage connections to individual homes in that street) are connected to the ISP – in the past, copper wire, with a much lower potential capacity, was used. This situation is known as fibre to the cabinet (FTTC), a different kettle of bits to routing fibre optics directly to the home (fibre to the premises, or FTTP, expensive and only available in a few areas).

FTTC results in more data-carrying capacity to share among subscribers connected to that street box – consistent speeds of between 40 and 80Mbps are routine. Even with copper, you could, however, get speeds fast enough for 4K – but it depends on the requirements of any other customers being served at that point. If you're viewing 4K when the rest of your neighbourhood is in bed, then you may be okay.

The BBC iPlayer 4K trial, which could be viewed on Sky Q, the latest Virgin TiVo box and selected TVs, including yours, featured footage from the recent *Planet Earth II* series. It's been reported (but I don't have confirmation) that some of it streamed at a mere 15Mbps – which most ISPs should be able to deliver.

While cable networks can offer speeds that fulfil the demands of 4K easily, it's not so clear-cut when it comes to the speeds you can expect via DSL (Digital Subscriber Line), FTTC or no FTTC. The copper wire that connects the street box to your home could be ancient and prone to noise, which will cut down your speed as corrupted data is retransmitted. Another factor that'll affect your enjoyment of 4K streams is the effectiveness of your equipment's buffering capabilities.

★ Star Letter...

I've been bitten by the AV bug again!

Back in the 1990s I was a faithful follower (not to mention subscriber) of what I considered to be my bible on everything AV – *Home Cinema Choice*. I was proud to have had letters printed, not to mention being the subject of the AV-Holic feature that used to adorn these pages [*and still does! – Ed*], featuring my old DLP rear-pro set and my Pioneer LaserDisc player still on the shelves next to my DVD deck...

But in the last decade or so, a strange thing happened. I lost my way with *HCC* and cancelled my subscription. But rest assured! The situation has been rectified, I have returned to the fold and above all, I now know the reason as to why this happened...

The answer leapt out of the pages of Mark Craven's column in *HCC* #269, where he mentioned a family member being impressed by his 4K UHD demo as they hadn't yet updated their own Full HD setup. This in turn chimed with Mr Craven's prior comment about constantly upgrading AV kit. It dawned on me that having been an early adopter of almost everything from LaserDisc to Sky+ to DVD, to HD DVD and every blooming profile of Blu-ray, I suddenly stopped. It turns out I was satisfied with what I had – a Panasonic DMP-BDT500 player, accompanied by my aged but beloved (and HDMI-challenged) Denon AVR-3803 (using the BDT500's excellent audio decoding and 7.1 output); Miller & Kreisel speakers and REL subwoofer; and 50in THX-rated Panasonic plasma.

Some of my friends bought into 3D but I was left uninspired, others purchased curved screens and I certainly couldn't get excited about that. For the one or two that were dipping into 4K I was mildly curious. Some of the images I witnessed were quite breathtaking but I was still lethargic in contemplating any kind of upgrade.

Then a strange thing happened. Suffering the post-Christmas blues that follow the gorging on sweet meats, chocolate treats and alcohol, I looked down at my groaning waistband and made a conscious decision for 2017, a kind of resolution if you will.

Was it to join the local gym? Hardly. Instead I renewed my sub to *HCC*, and soon #269 fell onto my door mat.

It was like I had never left. Yes, there had been a few changes, but there were the familiar faces, features and articles that I had been acquainted with. I decided then I was going to move on with my AV life and delve into the crystal-clear waters of UHD and (hopefully) longer term, Dolby Atmos.

Therefore, I need your advice. I have always upgraded more or less by one component at a time, trying to obtain the 'best bang for my buck' that I could afford. So where I should start? My instinct says begin with a 4K panel (with HDR?). I currently stream a great deal from the likes of Netflix and Amazon, therefore the built-in apps should provide me with some 4K content. Yet at some point I will want to move into the world of 4K Blu-ray. This would also mean retiring my Denon receiver for an Atmos/HDMI-enabled model and, possibly, some additional upfiring speakers. *Ian Forster*

Mark Craven replies: Welcome back Ian! How to upgrade from Full HD and 5.1 to 4K and Dolby Atmos? One component at a time? That's a tricky question – especially without knowing your budget.

On an entry/mid-range level, you can get a cracking 4K (with HDR) TV of the same size as your PDP for around £850 (such as Samsung's UE-49KS7000). And you can get a new 4K deck without having to upgrade your Denon AVR, as long as the player has multichannel outputs. Look at models from Panasonic and Oppo. I wouldn't recommend getting a 4K TV without HDR.

You might want to upgrade your screen size too, which will cost more, and if you want a display that will handle future HDR formats, such as HLG (for broadcast TV), you might want to wait until 2017 models arrive.

There's less future-proofing to worry when it comes to upgrading for Atmos, but this will require a new AVR with Atmos decoding (there are loads of these around) and, as you say, some upfiring speakers. There's more to consider here, too, in terms of whether you want (or can accommodate) a nine-channel or even 11-channel system).

I can't say definitively which upgrade you should do first. Getting a 4K TV will have an impact on everything you watch, though.

Star letter-writer Ian grabs the BBC's recent four-part psychological thriller *Apple Tree Yard* on Blu-ray. Two-time Academy Award nominee Emily Watson stars as a middle-aged married geneticist whose world spirals into chaos after she embarks on a passionate affair with a charismatic stranger (Ben Chaplin). The intense and addictive *Apple Tree Yard* is available to own now on Blu-ray and DVD, courtesy of Arrow Films. The four episodes are also available to download from iTunes.



Where should my speakers go?!

I'm in the process of upgrading my current AV system from 7.1 to Dolby Atmos 7.1.4 and I'm getting confused regarding the position of the extra four ceiling speakers that I want to install. The section regarding speaker placement from an Arcam manual and Dolby's own recommendations don't tally.

Arcam says: 'The AV860/AVR850/AVR550/AVR390 support up to four ceiling or Dolby Atmos-enabled speakers. If just two are used then they should be positioned centrally between the screen and listening position. If four are used then they should be positioned just in front of the screen and just in front of the listening position.'

I already have ceiling speakers (from Speakercraft) for both surrounds and rears. I couldn't have conventional speakers as the room is a living area and not just a dedicated cinema room. The distance between the seating area and the screen is 4.5m.

Gary

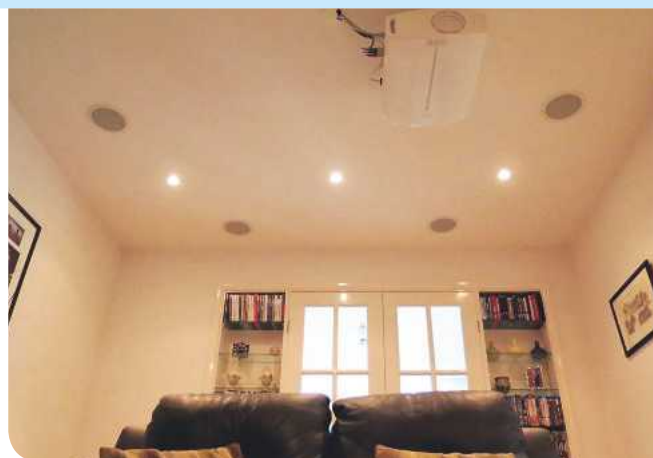
Richard Stevenson replies: You're right that Arcam's placement guide certainly flies in the face of Dolby's advice (Dolby says the rear height pair – when four are used in total – should be behind the listening position, not in front). Looking at Arcam's manual, it actually prints the correct picture diagram, but its text

doesn't match up. I installed four overhead speakers and went with Dolby's specification (give or take a few degrees of elevation).

With your room, the easiest part is adding ceiling speakers for the front Atmos pair in a 7.1.4 system. Then you have the question of what to do elsewhere. You could keep the rear backs as they are, and assign the ceiling surrounds that you have to be Atmos rear overheads. From the pictures we've seen of your space, they wouldn't be in the perfect position, but perhaps you could move your seating forward a touch.

Unfortunately, this means you have no surround speakers in play! If you absolutely can't fit standmount surrounds in your living room, then you may be out of luck regards 7.1.4, as we're not sure there's space for eight ceiling speakers to function cohesively. Moreover, the 3D soundfield that Dolby Atmos should create will be severely hampered if all your effects speakers are on the 2D plane of the ceiling.

Getting your surround speakers much lower in the room would really deliver the goods, so is there room for in-wall speakers (or



Gary's rear and surround speakers are already in-ceiling

shallow on-walls) to the sides of your listening position?

In this instance, you might want to contact a CEDIA-approved cinema room installer for advice, rather than install new speakers and then not be happy.

Or perhaps upgrading to 7.1.2 for the time being might be in order ■

Contact us...

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WIN! Great Blu-rays up for grabs...

Just email your answer to Competitions@homecinemachoice.com to be in with a chance to win

**Jack Reacher: Never Go Back**

This action thriller based on the bestselling series of books by Lee Child is available now on Digital Download, and comes to DVD, Blu-ray and

Ultra HD Blu-ray on February 27.

Thanks to Universal Pictures we have five Blu-rays to be won.

Question:

Which of the following is not the title of a real Jack Reacher novel?

Answer:

A) The Hard Way B) You Can't Reach Her, Reacher C) Bad Luck and Trouble

Email your answer with 'Jack Reacher' as the subject heading – and don't forget to include your postal address!

**Train to Busan**

Forget snakes on a plane, this exhilarating Korean horror flick finds a group of commuters dealing with zombies on a bullet train!

Train to Busan is available now to download, with the

DVD and Blu-ray following on February 27 courtesy of StudioCanal – and we've got five copies of the Blu-ray up for grabs.

Question:

What is the name of director Yeon Sang-ho's animated prequel to *Train to Busan*?

Answer:

A) Seoul Station B) Gwangju Gorefest C) Incheon Intercity Railway

Email your answer with 'Train to Busan' as the subject heading – and don't forget to include your postal address!

**I, Daniel Blake**

This acclaimed story of triumph and adversity in modern Britain from director Ken Loach is available now digitally, followed by DVD and Blu-ray on February 27.

To celebrate the release we've teamed up with Entertainment One and have four *I, Daniel Blake* Blu-rays to dish out.

Question:

I, Daniel Blake is the second Ken Loach film to win the Palme d'Or. What was the first?

Answer:

A) Ladybird, Ladybird B) Looking for Eric C) The Wind That Shakes the Barley

Email your answer with 'Daniel Blake' as the subject heading – and don't forget to include your postal address!

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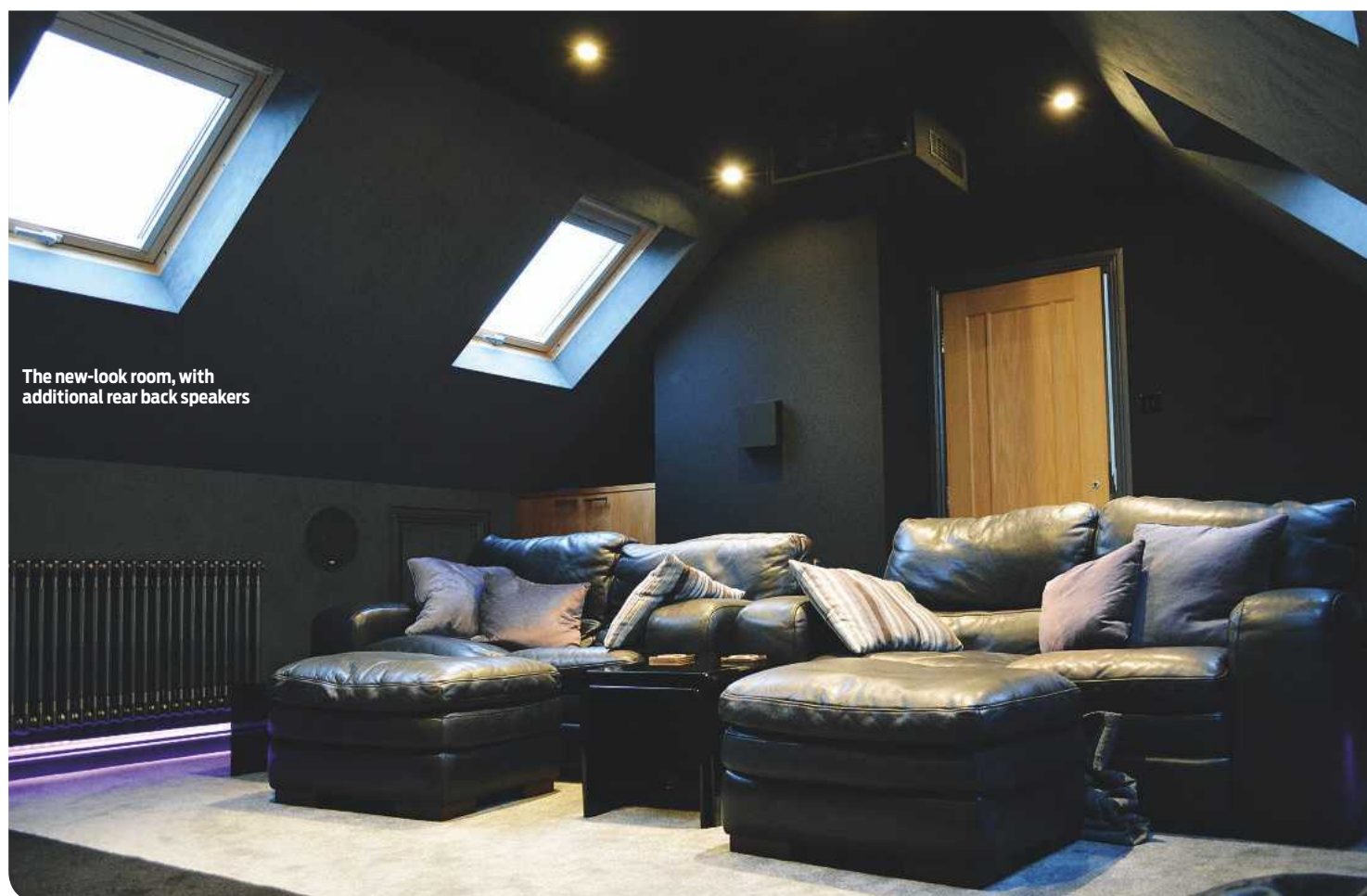
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The new-look room, with additional rear back speakers

Certified: AV-Holic!

We make a third visit in five years to HCC reader [Mr X](#), as he's just completed a Dolby Atmos speaker/AV receiver upgrade in his cinema room and given the space a new look with a fabric wall makeover. He's still rocking the same B&W DB1 subwoofer, though...

It's been a while since we last featured your room, and you've made some changes. What have you done, and why?

Yeah, I'm one of those people that can't sit still for too long without doing something and the loft cinema was no exception.

While sat watching movies I think I always looked at the walls and the sound absorption panels that were fitted and really wanted to have the walls covered in fabric to look and feel like a posh cinema. I've seen a lot of nice installs in *HCC* – most way out of my budget! – and wondered how close I could get without spending £100,000...

I've also loved the sound performance but wondered what Dolby Atmos would sound like. And with those things buzzing around my head, that was the plan.

I'm a voiceover artist by day and I get to speak to lots of producers and audio engineers, and the more I started bringing up Dolby Atmos in conversation and heard the rave reviews from people that had experienced it, I felt it had to be done.

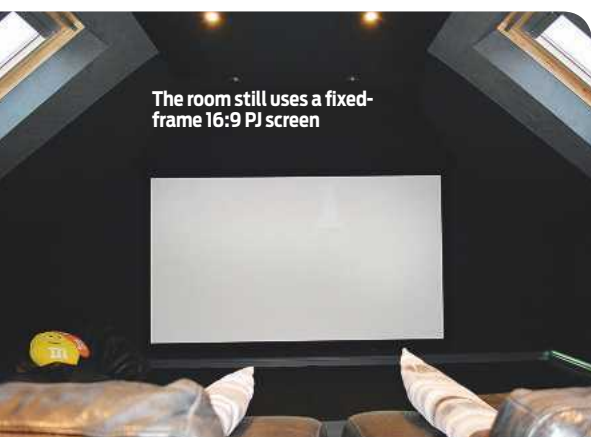
Oddly enough I had the Atmos speakers installed before even buying a new AVR. I think I anticipated that part two of the upgrade would be the fabric walls, so putting the speakers in before seemed like a good idea. I called back Pete from Lumiere-AV [in West Yorkshire] and he got to work fitting the new rear speakers, too.

Next I did some research and discovered a company called Desmond and Sons, which seems to be the go-to for fabric walls and acoustic treatment, with a portfolio including Abbey Road Studios. I felt I was in safe hands.

I sent them all the measurements and a whole bunch of pictures and they were able to work out what was needed. Within three weeks they were here transforming the walls with tracks and foam and suede and acoustic fabric. Re-mounting electrical sockets and lights into the fabric took three days and four of the hardest-working young lads I've ever met.

When they had finished and left, I was blown away. It not only looks incredible but walking into the room it now feels acoustically like a proper cinema. The funny thing is, the sound was awesome before. My other half thanks I'm crazy! I can live with that.

So, the fabric was in but no Dolby Atmos. I'd spent a long while wondering which AV receiver to get; also we wanted to get Christmas out of the way, too. Then, low and



The room still uses a fixed-frame 16:9 PJ screen



KEF in-wall Ci200QRs handle surround sound



It's the AV-Team!

behold, you guys reviewed the Denon AVR-X6300H receiver [HCC #269]. Your review sold it to me as the one to get for an 11-channel system without going silly on the financial side of things. After all, there are not *that* many discs that carry Atmos currently.

I spoke to the guys at retailer Audible Fidelity who also confirmed they were impressed with the Denon and with next-day delivery it arrived. It actually sat in the box for five days until Pete from Lumiere could come and install it. After a couple of hours and some speaker calibration, it's now in and the only Atmos disc I had was *Suicide Squad*. I put a loud scene on and... yup, sounds pretty damn good. So, that's what I've been doing since I was last in the magazine.

Did you get involved in any of the setup?

I did nothing apart from write a few cheques!

What kit have you got now?

I'm still using the Sony VPL-HW55ES PJ, and trusty Panasonic DMP-BDT310 Blu-ray player. The existing KEF speaker system has been rejigged with the addition of Artcoustic Target SLs as the rear speakers. So I now have KEF Ci9000s for front left, centre and front right; KEF Ci200QRs for surrounds and rear heights, and two Ci160CRs for front heights, plus the Artcoustics. Then there's the Bowers & Wilkins DB1 – the mother of all subs.

The Denon AVR-X6300H has replaced my Onkyo TX-NR1009. Other stuff in my kit rack includes an Apple TV box, Amazon Fire TV streamer, Sony PlayStation 4 and a Humax Freeview SMT-S7800.

What are your early impressions of the 11-channel Atmos speaker setup?

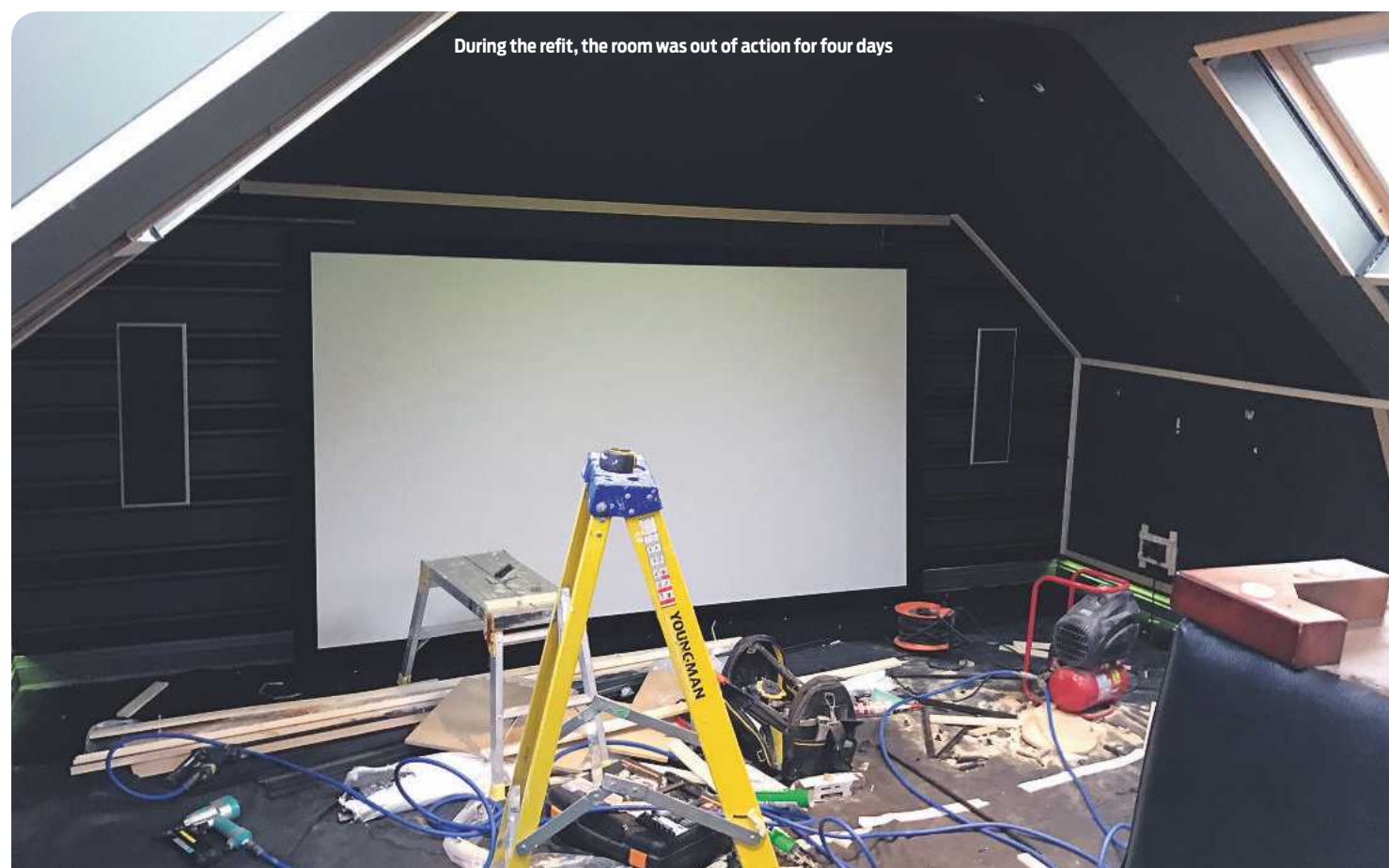
As mentioned, I've only had time to demo



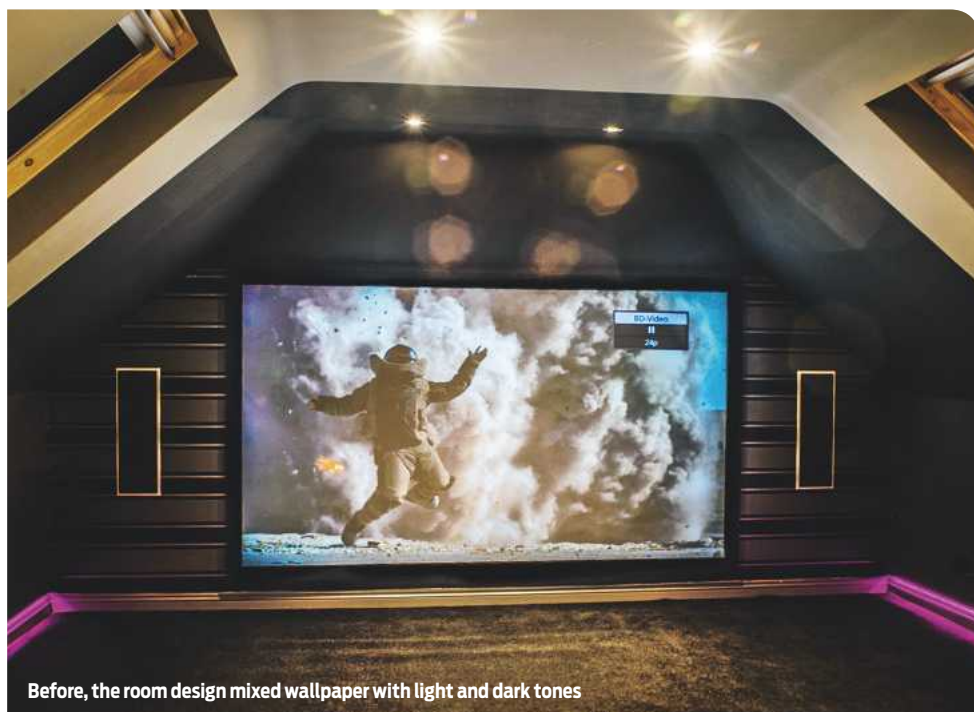
Speakers out, then back in again

with *Suicide Squad* and haven't even watched it all at the time of writing!

However, I do believe purchasing *Mad Max: Fury Road* is going to really give it a run for its money. >



During the refit, the room was out of action for four days



Before, the room design mixed wallpaper with light and dark tones

You said back in 2015 that you weren't interested in 4K – what about now?

Mmmm. I'm still sitting on this one. Technology is moving so fast. Having watched projectors come and go in your magazine, I think I'd certainly consider an upgrade. However, I'm back at the crossroads of 'which one to go for?' It's so hard.

You upgraded to a Control4 system – how is that working out for you? Has it made a big difference?

Yes, I love it. I actually like the physical remote control, so I'm not just using the app. The menus on screen are easy to navigate and we can flick between Apple TV, Amazon, Freeview, the Blu-ray player and Netflix with ease. We even installed it downstairs in the living room

and it opens the garage door, too. I'm impressed. It seems to just always work and that's what I wanted.

Last question: you're being sent to a desert island with a TV, BD deck and can choose 10 films to take with you – what do you go for?

Is there a generator to power all this hardware? Will there be M&M's? Or just coconuts? I'm not going to enjoy any of these movies if I'm sat on an old log with the noise of the sea all around me...

Anyway, in no particular order: *Blood Diamond*, *Casino*, *Man on Fire*, *Rocky Balboa*, *Mud*, *Shawshank Redemption*, *Star Wars: The Force Awakens*, *Walk the Line*, *The Wolf of Wall Street* and *David Brent: Life on the Road* for the comedy ■



Share your system in the mag!

If you want to be in **HCC**, you'll need to send us some hi-res images of your cinema room. Here are a few tips for great-looking pictures:

1. Go big. Set your camera to take images at the largest possible size, and at the highest resolution. Don't worry about cropping or resizing – we will make them print-ready.
2. Get in focus. Make sure your photos are as sharp and clear as possible. If you have one, use a tripod, or place your camera on a flat, steady surface and take pictures on a delay. The sharper they are, the bigger we can print them.
3. Let some light in. While we tend to watch

movies in the dark, our cinema systems look their best when they are lit. If you can shoot with natural daylight, do so. If your room doesn't get a lot of light (a garage conversion, for instance) then switch on whatever lights are fitted. Avoid using flash wherever possible.

4. Be thorough. Send photos of as much of the room as possible. Images of both the front and back of the room, the kit rack, speakers, seating, disc shelf, movie poster art... The more the merrier.



5. Don't be shy. Send a picture of yourself!
6. Show us more. Got pictures of your room before it was a cinema? Or snaps of work being done? We love to see these, too.

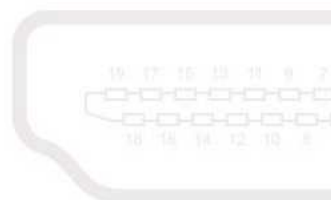
Email your selection of images to letters@homecinemachoice.com with the subject heading 'AV-Holic'. Provide us with some information about your setup – including a full kit list – and we'll then be in touch.



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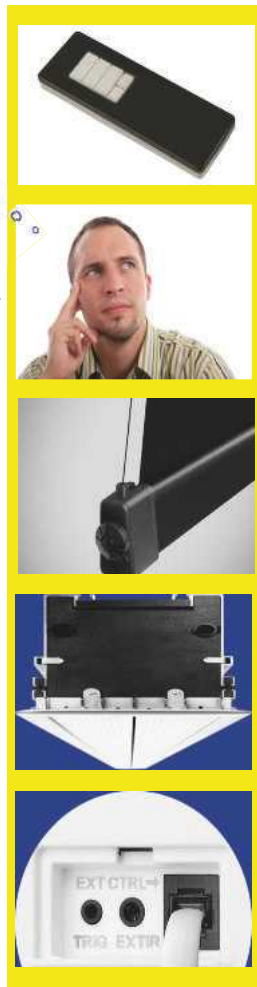


Model Numbers	VIEWING SIZE (MM) (L+H)	SIZE (FEET)	CASING (MM) (L+H+D)	ASPECT
SETC200WSF-ATR	2030 x 1140	80" x 45"	2625 x 155 x 170	16:9
SETC240WSF-ATR	2340 x 1320	92" x 52"	2935 x 155 x 170	16:9
SETC270WSF-ATR	2670 x 1500	105" x 59"	3245 x 155 x 170	16:9

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PLAYBACK

→ **SOFTWARE HIGHLIGHTS** **INFERNO** Dan Brown adaptation heats things up on Ultra HD Blu-ray **JACK REACHER: NEVER GO BACK** Tom's action sequel is Cruising for a bruising **TRAIN TO BUSAN** High-speed Korean zombie flick is on the right track **BRING ME THE HEAD OF ALFREDO GARCIA** Remastered Peckinpah classic is a slo-mo stunner & MORE!



Aiming for glory

The Magnificent Seven → Sony Pictures → Ultra HD Blu-ray

It's certainly assembled a magnificent cast, but will we be similarly effusive about the 4K presentation of this Western remake? Turn to p96 to find out if you should round up *The Magnificent Seven* on UHD BD...

HCC RATINGS KEY...

Outstanding	★★★★★
Above average	★★★★☆
Acceptable	★★★☆☆
Disappointing	★★☆☆☆
Dire	★☆☆☆☆

All prices quoted are approximate and may have changed

'Turns out the Jack Reacher we're looking for is 6ft 5in tall. Guess we've got the wrong guy...'



Success is just out of reach

Tom Cruise's other major action-thriller franchise stumbles with this run-of-the-mill sequel



→ JACK REACHER: NEVER GO BACK

This cinematic follow-up to 2012's *Jack Reacher* finds the military policeman-turned-drifter on the run with an Army Major (Cobie Smulders) falsely accused of being involved in the murder of two soldiers in Afghanistan. As if having a team of assassins on your trail wasn't enough to deal with, things get even more complicated for Reacher when he encounters a 15-year-old girl (Danika Yarosh) who may be his daughter.

Under the stewardship of director Christopher McQuarrie, the first Jack Reacher adaptation was an enjoyably retro-styled pulp thriller. Unfortunately, ...*Never Go Back*'s Edward Zwick is a far more prosaic filmmaker and fails to imbue his sequel with any sense of identity or style. As such, the film falls some way short of its predecessor, and feels like just another routine action thriller – a feeling not exactly helped by casting regular rent-a-villain Robert Knepper as one of the bad guys.

Thankfully, it's not all bad news. Regardless of any ongoing concerns about Tom Cruise's stature (or lack thereof), he still looks mighty convincing when he's punching people through car windows. Meanwhile, following on from her repeat gig as Maria Hill in the Marvel Cinematic Universe, Cobie

Smulders continues her evolution into a convincing action star. It's also a joy to see a female character in this type of movie driving the story and scrapping as just much as her 'leading man' instead of being relegated to the role of sidekick or love interest.

We've enough faith in Cruise's ability as an action actor to hope that the Jack Reacher film franchise continues after this outing. But future films should be put in the hands of directors who can do muster up something more dynamic.

Picture: *Jack Reacher: Never Go Back* arrives on Blu-ray with a first-rate 2.40:1 1080p presentation. Shot using 35mm film stock, the light grainfield inherent in the image results in an authentically textured appearance, while the encode's combination of impeccable clarity and subtle colour handling results in a convincing sense of depth. Good stuff.

Audio: This sequel scales up its action with an engaging Dolby Atmos track. Outside of a few effects (such as fireworks exploding in Chapter 15) there isn't much in the way of localised overhead info.

However, that doesn't stop the object-based mix from delivering an expansive, immersive and entirely satisfying acoustic experience.

Extras: Bonus features consists of six behind-the-scenes featurettes. As well as offering a solid overview of the film's production, they find time to celebrate the work of on-set photographer David James.



HCC VERDICT

Jack Reacher: Never Go Back

→ Universal Pictures
→ All-region BD → £25

WE SAY: High-end AV performance injects some much-needed life into this middling sequel on Blu-ray.

Movie: ★★★★★

Picture: ★★★★★

Audio: ★★★★★

Extras: ★★★★★

OVERALL: ★★★★★

Hunt for the Wilderpeople

Signature Entertainment
All-region BD → £15



Kiwi filmmaker Taika Waititi builds on the promise shown by 2014's *What We Do in the Shadows* with this funny and charming coming-of-age story about a juvenile delinquent and his adoptive father who go on the run in the New Zealand bush. One of 2016's funniest films, *Hunt for the Wilderpeople* is also one of Signature's best Blu-ray releases to date, offering bold 2.40:1 1080p visuals, lively DTS-HD MA 5.1 sonics and a strong selection of extras, including a chat-track, eight interviews and nine behind-the-scenes vignettes.



The Girl on the Train

Entertainment One → Region B BD
£25



You might conceivably expect a few thrills from a thriller. Sadly, they're seriously lacking in this plodding adaptation of Paula Hawkins' worldwide bestseller, which has basically been transformed into a neutered version of *Gone Girl* on its journey to the bigscreen. While this UK Blu-ray sports a superb 1.85:1 Full HD encode, there's no sign of the DTS:X mix that graced Universal's US release, leaving us to make do with a DTS-HD MA 5.1 track instead. The pair of featurettes from the US platter are also absent, but we do still get 14 deleted scenes and a director's commentary.



War on Everyone

Icon → Region B BD
£20



John Michael McDonagh (writer-director of *The Guard* and *Calvary*) heads Stateside for his third film: an arch buddy comedy about a pair of corrupt New Mexico cops (Alexander Skarsgård and Michael Peña) who butt heads with an English crime lord. Sharp, knowing, gleefully offensive and very funny, *War on Everyone* is like a twisted version of *Bad Boys* where the heroes really do live up to the title. This Blu-ray's 1080p encode is simply excellent, offering a mix of bright colours and blown-out highlights, while the DTS-HD MA 5.1 mix is agreeably noisy. Cast interviews are the pick of the disc's minimal bonus bits.



Hanks' inferno is a damp squib

Euro art-history thriller fails to drum up excitement, or make much sense either

→ INFERNO [4K]

Tom Hanks and director Ron Howard jump aboard the history-mystery train yet again for this third adaptation of a Dan Brown page-turner, although it's probably only recommended for franchise addicts.

Robert Langdon (Hanks, looking a bit bored by the whole shebang), whizzes around Florence, Venice and Istanbul, suffering from amnesia and trying to locate a biological bomb powerful enough to kill huge swathes of the world population, which has been hidden away by a now-deceased madman eco-scientist. Along the way he's helped by Felicity Jones' brainy doctor, but hindered by an assassin and, believe it or not, members of the World Health Organisation.

It's an almighty mess of a movie, fast-paced but never gripping, with a plot that, perhaps, makes more sense in a novel than onscreen. It didn't exactly set the box office alight, either, so don't hold your breath for a fourth flick in the series.

Picture: We were very impressed by Sony's UHD release of previous series entry *Angels and Demons*, and this platter continues the studio's good work, with a 4K HDR image that appears sharp and punchy, but naturalistic rather than overcooked. There's no overt colour-grading here, outside of Langdon's dream sequences, and peak highlights are subtle instead of retina-popping. The encode easily picks out the textures in the brickwork of Florence buildings and Hanks' pock-marked cheeks. It's the sort of image that 4K adopters have been demanding; the 1080p version, meanwhile, is impressive, but plays second fiddle in the



'What happens if I push this?'

clarity stakes and feels a little flat in comparison to its HDR counterpart.

Audio: There's a surprisingly inventive Dolby Atmos mix here, with the soundfield littered with steered effects and ambient-setting details, plus judicious use of LFE to heighten dramatic moments. Dialogue is high in the mix, and Hans Zimmer's score sounds wonderfully rich. The Full HD disc houses a 5.1 DTS-HD MA track.

Extras: Sony adopts a similar template for this release to *The Magnificent Seven* (over the page), so the 4K disc houses nothing beyond 'Moments' with the remaining stuff is split across the 1080p feature disc and a bonus Blu-ray: these include a collection of seven extended/deleted scenes, and mildly diverting featurettes looking at shooting in Europe, Hanks and Jones' characters, filming the dream sequences and more. Be warned that one of the featurettes is packed with spoilers...



HCC VERDICT

Inferno [4K]

→ Sony Pictures → All-region UHD
BD & All-region BD → £30

WE SAY: Even a first-class 4K release can't save this frantic mystery flick from feeling like a let-down.

Movie: ★★★★★

Picture: ★★★★★

Audio: ★★★★★

Extras: ★★★★★

OVERALL: ★★★★★

Sharp shooter

Denzel Washington leads the line in this fine-looking 4K remake

→ THE MAGNIFICENT SEVEN [4K]

When the residents of mining town Rose Creek are faced with either selling their land to – or dying at the hands of – murderous landowner Bartholomew Bogue (Peter Sarsgaard), widower Emma (Haley Bennett) heads out to approach warrant officer Sam Chisholm (Denzel Washington) for help. Swayed by her plight and a big bag



Yee-haw! Denzel and his mates have dressed to impress at tonight's line dancing competition...

of money, Chisholm rounds up six further courageous gunslingers and sets about righting some wrongs, Wild West-style.

Is a remake of the superb 1960 Western – itself a remake of Akira Kurosawa's *Seven Samurai* – necessary? Some will think not, but this has enough about it to justify its existence: this time around the gang are a melting pot of cultures fit for a film about 19th century California (including a Mexican bandit and a Native American warrior, not to forget an African American lawman); Westerns are so few and far between these days that any are welcome; and you get to see Denzel Washington riding a horse, firing a six-shooter.

The film is at its weakest during its opening act, with a narrative that flits about as characters and motivations are introduced and there's a general shortage of drama. Yet once it settles into the *Magnificent Seven* getting the job done, director Antoine Fuqua (*Training Day*, *Olympus Has Fallen*) handles the action extremely well, constructing lengthy, multi-scene shootouts that pin you to your cinema seat.

Rated 12 by the BBFC, *The Magnificent Seven* pushes at the boundaries of that certification with some grim moments of physical violence, but still finds space for a few welcome laughs amidst the carnage. And the leading cast all seem to be enjoying the ride, particularly Vincent D'Onofrio (as an ageing fur-trapper) and Ethan Hawke (as a Confederate Civil War veteran with a secret).

All told, this is two hours of old-school escapism. Saddle up!

Picture: As a Western, there was little doubt that *The Magnificent Seven* would be lensed on anything other than 35mm film at 2.35:1, and the result on this 4K (and 1080p) release from Sony Pictures is a classy image with fine film grain (most noticeable in shots including large expanses of hazy sky, but never a distraction).

It's blisteringly sharp, too. Spin up the UHD version and you're treated to masses of detail, which helps pick out foreground elements such as clothing textures and facial pores, while ensuring three-dimensionality to the image with well-resolved backgrounds, apart from when Fuqua opts for a deliberately shallow depth of field.

The 4K disc's HDR grading benefits from the director's frequent use of sunlight, giving the picture a more nuanced and natural feel than its SDR iteration, while candlelights and reflections are sharp against the darkness in interior scenes. Colour grading, skewed towards yellows and browns, is more stylised than authentic, but it imparts a warmish tone to proceedings.

Audio: Another Sony release which offers DTS-HD MA (7.1) on the 1080p disc but carries

Byung-hun Lee (right) shoots first, asks questions later

Washington and Ethan Hawke last shared the screen in *Training Day*



Atmos on the 4K presentation. Both are rootin', tootin' efforts that are high on fidelity and positional effects, with tight bursts of LFE accompanying every gunshot.

With its historical setting, there's not much scope for anything particularly showy or inventive here beyond some impressively weighty dynamite explosions, and – on the Atmos track – some immersive overhead moments during the town siege. And what's offered is balanced, clear and dovetails perfectly with what's happening onscreen.

Extras: There's a good array of extras here, but the way they're presented is a little odd. The 4K disc houses the film and nothing else, although the menu does feature a 'Moments' option that lets you jump into scenes based around certain elements. Cue up 'Action Scenes', for instance, and it branches between the film's two major shootouts. Handy for demo sessions, we suppose.

On a BD50 disc housing the 1080p version of the film you get the option to watch the movie in Vengeance Mode (the same name for a similar option on the Fuqua/Washington Blu-ray of *The Equalizer*). This runs the film with spliced-in behind-the-scenes video chatter from Fuqua and the seven leads. It's a neat alternative to a traditional commentary track, and there's plenty of interesting info and insight, but does make watching the movie a near three-hour experience. Too long? Also on this disc are five short featurettes looking at direction, casting, specific scenes, Sarsgaard's villain and the film's score, which was started by the late James Horner but completed by Simon Franglen.

While in the US the 4K release is a two-disc affair, UK buyers get three platters and extra extras.

Disappointingly, though, the third disc holds a single seven-part featurette (27 minutes). This plays automatically – there's not even a disc menu – and covers different ground to the other bonus bits but with some overlap. A nice addition, but easy to see why it's been left off in other markets.



Washington and Antoine Fuqua will re-team in 2018 on *The Equalizer 2*



HCC VERDICT

The Magnificent Seven [4K]

→ Sony Pictures → All-region UHD BD & All-region BD → £30

WE SAY: A gorgeous 4K HDR outing for a fun, diverse remake of the classic Western.

Movie: ★★★★★

Picture: ★★★★★

Audio: ★★★★★

Extras: ★★★★★

OVERALL: ★★★★★

Arcade Action

Bigscreen home entertainment isn't just about movies anymore. **Rik Henderson** checks out a videogame vying for time on your home cinema system...



Resident Evil 7: Biohazard

Capcom → PS4, Xbox One, Windows PC → £53

After the third-person creepy shooters of the last decade or so, *Resident Evil* goes back to its roots – delivering a pant-wetting romp through the scariest house this side of *Celebrity Big Brother*.

The house in question, the Spencer mansion, is a dilapidated stain on the Louisiana landscape and home to the Bakers – a family that puts the 'aaarrgh' into dysfunctional. Think *The Hills Have Eyes* and *The Texas Chain Saw Massacre* rolled into one, add a splash of *Day of the Dead* and you're almost there. You are the prey and they are the hunters.

The house is the real star of this first-person fright-fest, as it allows publisher and developer Capcom to use every suspense and horror cliché in the book to great effect. Just wandering through a door can be a terrifying experience. The constant nagging fear of what might be on the other side was a mainstay of the original *Resident Evil*, even with its rudimentary graphics of the time. *Resident Evil 7* takes that up to another level.

Bar the exploration, gameplay relies partly on puzzles, which must be completed to get to the next area, partly on combat and partly on pegging it and hiding. The combat is clever as you can target different extremities of the Bakers and other denizens, but on the first play you'll probably be too panicked to care what you hit.

The PS4 version is by far and away the best to get. It comes with HDR visuals and has PlayStation VR headset support. Indeed, the first-person viewpoint means that the game is ideally suited to VR – although you'd have to be insanely brave to play this way. PS4 Pro owners get an even better deal, with a resolution of 2,240 x 1,260 over the standard PS4's 1080p, plus enhanced lighting effects.

PC and Xbox One players do get one bonus to compensate, though: buy the game digitally and you can play on both systems. With Xbox Play Anywhere, you can also start a game on a Windows 10 PC and then continue with the same save on an Xbox One. The PC version also supports a 4K resolution (3,860 x 2,160) if your machine is up to the task.

With *Resident Evil 7: Biohazard*, Capcom has given the series a first-person makeover and in doing so brought the franchise back to its terrifying best. Just bring a spare pair of undercrackers.



I, Daniel Blake

Entertainment One → Region B BD
£25



Ken Loach delivers his most effective and affecting film in years with this rabble-rousing drama exploring injustices suffered by those at the sharp end of the UK's welfare state.

If this all sounds unbearably grim, Loach and writer Paul Laverty manage to balance the film's fury with a sense of humour. Understandably, the neo-realist visuals and low-key sound design leave this Blu-ray little to do in AV terms – other than replicate the source material flawlessly, which it does. Satisfying extras include a *Making of...* and chat-track.



I Am Not a Serial Killer

Bulldog → All-region BD
£25



Sixteen-year-old John Wayne Cleaver (Max Records) has all of the makings of a serial killer, but lives by a set of rules to ensure that he doesn't let his inner 'monster' out. However,

when a *real* monster starts killing people in John's home town, he comes to the conclusion that the only way to stop it is to give in to his dark side. Shot on 16mm, this enjoyably off-kilter indie horror flick comes to Blu-ray with an authentically bleak and grainy 1.66:1 Full HD transfer, while the DTS-HD MA 5.1 soundtrack packs plenty of impact. Brief extras include test footage (shot back in 2011) and five deleted scenes.



Revolting Rhymes

Entertainment One → R2 DVD
£12



One of the highlights of the BBC's 2016 festive schedule, this two-part TV adaptation of Roald Dahl's collection of reworked fairy tales is just as much fun for grown-ups as it is for kids. Even those familiar with Dahl's twisted tales will find that this CG animated adaptation holds plenty of surprises thanks to the ingenious way it ties its six stories together. Foregoing Blu-ray, *Revolting Rhymes* comes to DVD with a colourful anamorphic 1.78:1 transfer and solid DD 5.1 audio. A *Making of...* and photo gallery are the only extras.





We've seen
a lot worse on a
London night bus



Chew-chew on the choo-choo

The passengers on this train face bigger problems than strikes and confusing ticket prices

→ TRAIN TO BUSAN

Ever since Kang Je-gyu's action blockbuster *Shiri* exploded onto the bigscreen in 1999, discerning film fans have kept an eye on South Korean cinema. Over the best part of two decades, this awareness has been rewarded by such diverse treats as *Joint Security Area*, *My Wife is a Gangster*, *The Host* and Park Chan-wook's astonishing *Vengeance Trilogy*.

This period also saw a resurgence of horror cinema in the country, with 'K-Horror' hits such as *R-Point*, *A Tale of Two Sisters*, *Into the Mirror*, *I Saw the Devil* and *The Wailing* all getting a UK release. But if there was ever a film that could really bring K-Horror to the attention of mainstream Western audiences, it's undoubtedly former animator Yeon Sang-ho's energetic new zombie thriller.

Train to Busan follows workaholic divorcee Seok-Woo (Gong-Yoo) and his neglected daughter Soo-an (Kim Su-an) as they take the KTX bullet train from Seoul to Busan to visit her mother. Little do they realise the chaos that a fellow passenger – a young woman with a strange bite on her leg – is about to unleash. Suffice to say, it isn't long before the high-speed train is packed with flesh-eating fiends and, with news channels reporting similar outbreaks across the country, the surviving passengers' only hope is to reach a quarantine zone that has been set up at their final destination.

Unlike this month's other zombie film, *The Girl With All the Gifts* (see p100), *Train to Busan* isn't interested in taking the genre into new territory.

Instead director Yeon Sang-ho has crafted a highly propulsive horror-thriller based around the simple notion of being locked in a cramped train with the undead. The fun comes from seeing how he uses the claustrophobic environment and its unique features (such as pitch-black tunnels and runaway trains) to ramp up the nail-biting terror.

On top of this, Sang-ho demonstrates a sharp eye for Romero-esque social commentary regarding fatherhood, privilege and corporate responsibility. Together it all adds up to an electrifying Korean film with an abundance of white-knuckle thrills. This should have no difficulty winning over even those viewers who usually can't see beyond subtitles.

Picture: *Train to Busan* pulls up on Blu-ray with a pleasing 1.85:1-framed 1080p encode. Shot digitally, the imagery is crisp and sharp, with the intricately drawn textures helping to showcase the zombie make-up. Although the colour palette is intentionally drab, brighter hues are well saturated. There are some instances of noise in low-light shots, but black level and contrast are generally very strong.

Audio: StudioCanal's Blu-ray sports a fantastic DTS-HD MA 5.1 Korean soundtrack that makes excellent use of the entire soundfield. It's lively and immersive. Indeed, our only real complaint is the absence of the DTS:X mix that appeared on the film's US release.

Extras: In a word: disappointing. Apart from a fly-on-the-wall look at the making of several scenes, the only other extras are two brief promos for Sang-ho's animated prequel *Seoul Station*.



Studio Gaumont has picked up the film's English-language remake rights



HCC VERDICT

Train to Busan

→ StudioCanal → Region B BD
→ £23

WE SAY: A great-looking HD debut for this energetic zombie movie – although better extras and a DTS:X soundmix would have been nice...

Movie: ★★★★★

Picture: ★★★★★

Audio: ★★★★★

Extras: ★★★★★

OVERALL: ★★★★★



Old-school scarefest satisfies

Don't worry, Mike Flanagan's prequel is a lot better than its terrible predecessor

→ OUIJA: ORIGIN OF EVIL

'So bland and uninspiring that it's less terrifying than a game of *Hungry Hungry Hippos*.' That was the parting shot in our review of boardgame-based fright flick *Ouija* back in HCC #246. Still, as bad as it was, the film did well enough for Universal Pictures to greenlight a sequel. Which is why, two years later, we now find ourselves reviewing *Ouija: Origin of Evil*...

As the title indicates, this movie serves as a prequel to the original, dialing back the clock to 1967 to follow a cash-strapped widow who makes ends meet by performing faked seances with the help of her two daughters. However, when she introduces a ouija board into her readings, things start to get very real, very quickly.

Ouija: Origin of Evil is hardly the most original horror flick around, but in this instance that isn't a failing. Instead, director/co-writer Mike Flanagan (who previously gave us the 2013 haunted mirror movie *Oculus*) uses the set-up to deliver a solidly-constructed genre throw-back. And here the slow-boiling tension and scares are anchored to well-developed characters, given life by three fabulous central performances (young Lulu Wilson is especially deserving of praise).

Add to this some wonderful era-appropriate aesthetic touches (including the older Universal logo that appears pre-credits and the artificial cigarette burns marking reel changes) and you're left with an affectionate, enjoyable nod to a bygone period of cinema.

Picture: While *Ouija: Origin of Evil* was shot digitally, the filmmakers have gone out of their way to make it



look like retro film stock. This extends to the use of older lenses and the decision to shoot anamorphically, but cropping this down to a 1.85:1 aspect ratio, simply to ensure that light sources have the right sort of look. The Blu-ray encode itself is very strong with authentic colour values, excellent black levels and negligible traces of noise.

Audio: The DTS-HD MA 5.1 mix does exactly what you'd expect for a horror title. Surround channels are regularly called upon to enhance the onscreen scares with atmospheric effects and dynamic sudden jumps in level, while LFE info becomes more and more prevalent as the movie builds towards its finale. Nicely done.

Extras: Bonus features include seven deleted scenes, and three featurettes – an overview of the entire production, plus videos about the main location and actress Lulu Wilson. Best of all, though, is an extremely illuminating director's commentary.



HCC VERDICT

Ouija: Origin of Evil

→ Universal Pictures
→ All-region BD → £25

WE SAY: A solid little horror film that's better than its predecessor on a well-specified HD platter.

Movie: ★★★★★

Picture: ★★★★★

Audio: ★★★★★

Extras: ★★★★★

OVERALL: ★★★★★

Roger Corman's Death Race 2050

Universal Pictures → All-region BD
£25



If the big-budget Jason Statham remake and its DTV sequels left you craving the B-movie silliness of the original

1975 *Death Race*, then you'll get a real kick out of this knowingly cheap and decidedly non-PC update. Coming across like some sort of live-action *Wacky Races* where the aim of the day is to run over pedestrians, it's pure schlock – but it's all done with its tongue pressed so hard in its cheek that it's hard not to just kick back and enjoy it. Clean 1.78:1 visuals, serviceable DTS-HD MA 5.1 sonics and some fun extras are the icing on this goofy hi-def cake.



Black Society Trilogy

Arrow Video → Region B BD
£30



This two-disc set brings together Miike Takashi's thematically-linked trio of crime films: *Shinjuku Triad Society*, *Rainy Dog*

and *Ley Lines*. Each stands apart from the rest, both in terms of story and style – the first is as extreme as you might expect from the director who would one day make *Ichigo the Killer*, the second is surprisingly humanistic and the third has a vague whiff of the French New Wave. As well as sharp 1.85:1 1080p encodes of the three films accompanied by LPCM stereo mixes, the set also includes chat-tracks and trailers for each film, plus two interviews and a 40-page booklet.



Morgan

Twentieth Century Fox → Region B BD
£25



A companion piece of sorts to his father's sci-fi hits *Blade Runner* and *Prometheus*, Luke Scott's directorial debut

sees a young corporate risk-management specialist (Kate Mara) sent to a secret lab to decide if an artificial human should be terminated. Sadly, despite the complex moral quandary at its core, *Morgan* quickly gives itself over to standard issue B-movie tropes and becomes less interesting as a result. The film's heavily-graded aesthetic translates very well to Blu-ray courtesy of a pristine 2.40:1 1080p encode, which is joined by an active DTS-HD MA 7.1 mix. Extras include Scott's 2012 short *Loom*.



The Girl With All the Gifts

Warner Bros. → All-region BD
£25



The presence of Glenn Close in the cast is the first sign that this isn't your typical zombie film.

Based on the bestseller of the same name, *The Girl With All the Gifts* offers a fresh take on an over-stuffed genre with its focus on hybrid children that have been born into the post-zombie outbreak setting. This intelligent fright flick hits Blu-ray with a textured 2.00:1-framed 1080p image that is only held back by occasional softness employed for stylistic effect. Meanwhile the disc's haunting DTS-HD MA 5.1 mix does a fine job of getting under your skin.





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Bennie would stop at nothing to find out who loosened the top of his ketchup bottle



Peckinpah's loser wins on BD

New 4K restoration and generous extras put this UK Blu-ray release ahead of the competition

→ BRING ME THE HEAD OF ALFREDO GARCIA: LIMITED EDITION

Smarting from the critical and box office failure of the previous year's *Pat Garrett and Billy the Kid*, 1974 found director Sam Peckinpah taking a break from the Western genre and interfering Hollywood producers. Heading to Mexico he set about shooting the story of a down-on-his-luck bar room pianist (Warren Oates) who believes he's found a way of turning his life around when he gets involved in the hunt for a man with a \$1,000,000 price on his head.

Unfortunately, *Bring Me the Head of Alfredo Garcia* fared little better with critics and audiences of the time than its predecessor. But as with that film, the subsequent decades have seen its popularity grow and grow, as people come to appreciate Peckinpah's booze-soaked tale of obsession, redemption and self-destruction.

Watched today the movie feels like a complete one-off. While it clearly taps into a vein of anger and cruelty that is familiar from Peckinpah's other features, between the slow-motion set-pieces and sudden eruptions of bloody violence are unexpected moments of (black) humour and tenderness. This is because at its heart *Bring Me the Head of Alfredo Garcia* is a love story. An offbeat love story to be sure, but also a very touching one.

While it may take you deep into Mexico's heart of darkness, it does so with a cheeky glint in its eye and a sense of poetry in its heart.



Picture: Prior to this UK release, *Bring Me the Head of Alfredo Garcia* had already seen the light of day on BD in France, Italy and the US. However, while those discs were based on off-the-shelf HD masters, Arrow has undertaken its own 4K restoration of the original 35mm camera negative (with a few shots coming from an interpositive element). The resulting AVC 1.85:1 Blu-ray encode represents a significant step-up in quality.

Brighter and cleaner, with a tighter grain structure, the 1080p image also exhibits more refined textures and a warmer (but still authentically grimy) palette.

That said, there are several dark interior scenes that serve up rather muddy-looking blacks and four close-ups of Warren Oates' face as he sits under a tree with Isela Vega in Chapter 4 exhibit a striated texture in the sky behind him. But these all relate back to the source material rather than the disc itself.

Audio: The Blu-ray's LPCM 1.0 soundtrack does the best it can with the material on hand, but it is still extremely limited when it comes to scale and dynamic range. Technically proficient then, but not especially exciting.

Extras: The film is joined by a pair of commentaries; an archival interview with Peckinpah (audio-only); the trailer; four songs performed by Kris Kristofferson; and Paul Joyce's excellent 1993 TV documentary *Sam Peckinpah: Man of Iron*.

Exclusive to this limited edition is a 42-page booklet and a bonus Blu-ray containing the original interviews recorded for *Sam Peckinpah: Man of Iron* in full – over 10 hours of them.

HCC VERDICT

Bring Me the Head of Alfredo Garcia: Limited Edition

→ Arrow Video → Region B BD
→ £25

WE SAY: A superb Blu-ray release that will keep Peckinpah fans busy for days. Hunt it down now...

Movie: ★★★★★

Picture: ★★★★★

Audio: ★★★★★

Extras: ★★★★★

OVERALL: ★★★★★

Nocturnal Animals

Universal Pictures → All-region BD
£25



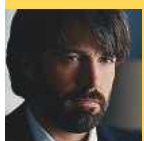
For his second film after the acclaimed drama *A Single Man* (2009), fashion designer/filmmaker Tom Ford

delivers a chilling modern noir wrapped up inside a study of a failed relationship. Infuriating and fascinating in equal measure, *Nocturnal Animals* never quite adds up to the sum of its parts – yet it still manages to dig its claws into your brain long after the end credits roll. Making the idea of a repeat viewing that much more palatable is this Blu-ray's magnificent 2.40:1-framed AVC 1080p encode and evocative DTS-HD MA 5.1 sonics. A two-part featurette is also included.



Argo [4K]

Warner Bros. → All-region UHD BD &
All-region BD → £30



Ben Affleck stars in and directs this Oscar-winning drama/thriller about a CIA rescue op during the

Iranian Revolution that used a fake sci-fi movie as its cover. Warner's back-catalogue UHD release carries the atmospheric DTS-HD MA 5.1 mix of the previous BD edition, and an HDR/4K image that picks out highlight details but still remains rather muted. It's sharper than the BD, but not jaw-droppingly so. Space is found on the UHD platter for a commentary track; the rest of the extras (including the Extended Cut mode) reside on the 1080p disc.



Julieta

Pathé/Twentieth Century Fox
Region B BD → £25



After the faltering high-camp comedy of 2013's *I'm So Excited*, Pedro Almodóvar is on much surer ground with this

return to his 'cinema of women'. Based on a trio of short stories by Alice Munro, this affecting melodrama stars Emma Suárez and Adriana Ugarte (pictured) as older and younger versions of the title character as she looks back at her life in an attempt to discover why her daughter abandoned her. While this Blu-ray's extras are rather lacking (just a trailer and some behind-the-scenes footage) it makes up for this with an opulent 1080i50 encode and DTS-HD MA 5.1 mix.



Cul-de-sac

Criterion Collection → Region B BD
£28



Roman Polanski's 1966 comic thriller first saw the light of day on Blu-ray in the UK late last year in a

triple-pack of the director's early films from Screenbound. Bizarrely, while that Blu-ray is set for a standalone release on March 13, it's been beaten to shelves by this platter from Criterion. While we've yet to see the Screenbound disc, it's hard to think that it could top Criterion's package, which boasts an excellent 'director-approved' 1.66:1 Full HD presentation of the film, 1967 interview with Polanski and a fascinating 2003 retrospective *Making of...* doc.



Insane Cain is raised with re-edit

Fan-made 'Director's Cut' elevates De Palma's nutty psycho-thriller to a whole new level

→ RAISING CAIN

Brian De Palma has always been something of a Marmite filmmaker, but even his most ardent fans had little kind to say about this 1992 thriller upon its original release. John Lithgow takes centre stage as Carter Nix, a respected child psychologist who secretly suffers from a multiple personality disorder and spends his spare time kidnapping kids and offing their mothers. Meanwhile, his wife Jenny (Lolita Davidovich) is rekindling a romance with a former lover (Steven Bauer). Clearly things are not going to end well for someone.

As intriguing as this may sound, the theatrical cut of *Raising Cain* is rather unbalanced. This is because De Palma lost confidence in the film's original structure following test screenings and re-edited it into a traditional chronological order. This makes it easier to follow, but also front-ends some of the bigger revelations and delays Jenny's introduction.

What makes this Blu-ray release so important is the inclusion of an alternate cut of the film. Despite being called 'The Director's Cut', it's actually the work of Dutch filmmaker and fan Peet Gelderblom, who re-edited the film to closer match an early script he'd come across. This version marks a significant structural improvement, building its thriller elements in a more satisfying manner. While the re-edit won't win over everyone, it's clearly the superior version – so it's no wonder that De Palma himself has given it his blessing.

Picture: The source element for both edits of the film is a hi-def master of the theatrical cut supplied



by NBC/Universal and as such there's no difference in image quality between them.

Thankfully, this wasn't one of the DNR-slathered Universal masters of old and the AVC 1.85:1 1080p encodes exhibit plenty of fine detail and a clear (if uneven) grain structure. Colours run pretty warm, but this appears to be intentional.

Audio: Each version of the film sports an LPCM 2.0 soundtrack. While some may lament the lack of the 5.1 remix that appeared on Shout Factory!'s 2016 US release, given that the major focus of the soundtrack is dialogue and Pino Donaggio's score, it never feels like you'll be missing out on anything special.

Extras: This double-disc Blu-ray offers up plenty of extras. These include seven interviews; a visual essay about the different versions of the film; the trailer; a photo gallery; an intro to and exploration of 'The Director's Cut' by Peet Gelderblom; and a 32-page booklet.



John Lithgow previously appeared in De Palma's *Obsession* and *Blow Out*

HCC VERDICT

Raising Cain

→ Arrow Video → Region B BD
→ £20

WE SAY: An impressive BD package that should lead to a reappraisal of this misunderstood movie

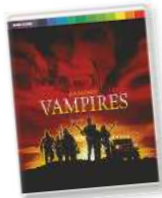
Movie: ★★★★★

Picture: ★★★★★

Audio: ★★★★★

Extras: ★★★★★

OVERALL: ★★★★★



Horror Blu-ray has the bite stuff

It may not be Carpenter's finest film, but this Blu-ray is still a must-own for his fans

→ JOHN CARPENTER'S VAMPIRES

When a team of Vatican-sponsored vampire hunters are slaughtered by master bloodsucker Jan Valek (Thomas Ian Griffith), the only survivors are squad leader Jack Crow (James Woods) and his right-hand man Tony Montoya (Daniel Baldwin). Taking advantage of the psychic link developing between Valek and a prostitute (Sheryl Lee) that he bit during the attack, the duo set out to get revenge.

While earlier John Carpenter films carried the influence of Howard Hawks' Westerns, this 1998 outing has much more in common with the films of Sam Peckinpah – right down to the abuse (verbal and physical) heaped on Lee's character Katrina. While this was an unexpected change of pace so deep into Carpenter's career, it clearly worked. Indeed, when compared to the films that immediately preceded it (*Village of the Damned* and *Escape from L.A.*), this sun-drenched bloodbath is a far more energetic effort, boasting a handful of superb set-pieces and a marvellously acidic lead performance from Woods. It's just a shame that he's pitted against such a forgettable villain, with Griffith's Valek giving a good scowl, but little else.

Picture: According to the booklet that accompanies the disc, this Blu-ray is sourced from a 'high definition remaster' supplied by Sony Pictures and supervised by Bill Karydes. The resulting 2.35:1 Full HD encode does an excellent job of handling the rich orange and red hues that dominate the palette, while pixel detail and native film grain are both evident. There are no compression artefacts to be seen.



Audio: The Blu-ray gives you a choice of LPCM 2.0 and DTS-HD MA 5.1 soundtracks. The latter is clearly the way to go, delivering a far more immersive and dynamic soundscape as it veers from desert winds blowing around you to gunfire spraying across the surround speakers. The dialogue and score (by Carpenter, of course) also sound excellent.

Extras: Pretty much all of the extras from the original DVD release are repeated here. These take the form of another of Carpenter's enjoyable commentaries; a six-minute *Making of...* promo; short interviews with Woods, Baldwin, Lee and Carpenter; nine minutes of B-roll footage; and the theatrical trailer.

Added to this are a 20-page booklet; an LPCM 2.0 isolated score; and the first half of a 1994 *Guardian* interview with Carpenter at the NFT. Running just shy of 40 minutes, it covers his career up to 1983's *Christine*. The second half appears on Indicator's *Ghosts of Mars* Blu-ray, reviewed below.



HCC VERDICT

John Carpenter's Vampires

→ Indicator → All-region BD & R0 DVD → £23

WE SAY: Indicator delivers another knock-out John Carpenter Blu-ray. Any chance of *Starman* next?

Movie: ★★★★★

Picture: ★★★★★

Audio: ★★★★★

Extras: ★★★★★

OVERALL: ★★★★★

John Carpenter's Ghosts of Mars

Indicator → All-region BD & R0 DVD → £23



The fact that John Carpenter's penultimate film to date was the best of the mini-rush of Mars movies that greeted the start of the 2000s says more about the dismal quality of the

other films than it does about this one. A sci-fi reworking of the director's *Assault on Precinct 13* (1976), *...Ghosts of Mars* is fatally undone by a baffling structure that, at one point, descends into a flashback within a flashback within yet another flashback. While the film is a bit of a misfire, this Blu-ray should still find favour with the director's acolytes thanks to its fine 1080p visuals, dynamic DTS-HD MA 5.1 audio and extensive extras.



Call of Heroes

Cine Asia → Region B BD £16



High Noon is given an Asian makeover in this martial arts epic from director Benny Chan. Set in 1910, the film

finds the stubborn 'sheriff' of a small-town militia dealing with the fallout from his arrest of the sociopathic son of a warlord. As well as being a thoroughly enjoyable film in its own right, this Eastern Western also marks the phoenix like rebirth of the Cine Asia Blu-ray label. Sadly, this initial outing is let down by a glitchy menu design and the lack of a lossless multichannel mix, leaving viewers to choose between LPCM 2.0 or Dolby Digital 5.1 tracks.



The Young Pope

Dazzler Media → All-region BD £35



Oscar-winning Italian filmmaker Paolo Sorrentino writes and directs this 10-part miniseries following the

fictional reign of the first American pontiff, the puckish, yet surprisingly conservative Pope Pius XIII (Jude Law). While the size of the screen he's creating for may be smaller, Sorrentino hasn't downsized his ambitions in the move from film to TV, and with *The Young Pope* he gives viewers one of the most engrossing and visually stunning series around. While this three-disc Blu-ray lacks any extras, the 1080i/50 encodes of the episodes themselves are nothing less than heavenly.



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After saddling up with *The Magnificent Seven* on UHD Blu-ray, **Team HCC** revisits a posse of other movies where the emphasis is on teamwork rather than going it alone

SEVEN SAMURAI

Ancestor to both the new *Magnificent Seven* and the 1960 Steve McQueen Western, this 1954 slice of swordplay from legendary Japanese director Akira Kurosawa is consistently ranked as one of cinema's finest moments, and deservedly so.

Get it: *Seven Samurai* has been subject to various edits over the years – a product of its original 207-minute running time. Thankfully, recent releases have carried Kurosawa's full cut. Note however, that the BFI's 2014 Blu-ray edition is out-fought by Criterion's 2010 package when it comes to supplementary goodies and image quality, so if your setup is multiregion-enabled, import that version.

One of our samurai is missing...



OCEAN'S ELEVEN

Not the humdrum original starring Frank Sinatra, but the fizzy, glitzy remake where George Clooney and ten pals conspire to do over a trio of Las Vegas casinos, for both money and revenge. Miraculously, director Steve Soderbergh holds it all together and creates a slick heist flick that benefits from some unusual narrative flourishes.

Get it: The film and its two sequels are available in a bargain-priced trilogy boxset on Blu-ray. But note there's a spin-off (*Ocean's Eight*) on the way.



KELLY'S HEROES

Clint Eastwood rustles up a team of crack troops and crackpots to head behind enemy lines and loot Nazi gold in this superb WW2 caper. Yes, war is hell, but with Donald Sutherland's hippy tank driver around, it's also fantastically funny. A gem of a movie that even finds time for a Spaghetti Western homage in the midst of its final act.

Get it: One of Warner's catalogue titles that could do with a reissue – the region-free Blu-ray is almost bereft of extras and imagery is uninspiring.



AVENGERS ASSEMBLE

The film that ended Marvel's gutsy Phase 1 project by uniting Iron Man, Captain America, Thor, Hulk and more hits all the right buttons when it comes to spectacle and zippy dialogue.

Get it: Pick up the region-free US BD if you want Joss Whedon's director's commentary, not to mention the theatrical version of the film – the UK Blu-ray release is not quite the same...



RESERVOIR DOGS

Quentin Tarantino's iconic pre/post-heist drama throws together a team of robbers (with colourful pseudonyms), before letting its audience in on the secret that one is an undercover cop. Such dramatic irony soon gives way to a dramatic, bullet-strewn conclusion. Thrilling stuff.

Get it: Choose from the 2008 Collector's Edition Blu-ray (in 'Petrol Can' packaging), an easier to find standard BD edition and a recent 'Mondo X' steelbook release with funky cover art.



THE USUAL SUSPECTS

A gang of criminals meet in a police station and form a plan of revenge. Or do they? In Bryan Singer's electrifying flashback-fuelled crime drama, nothing is quite what it seems...

Get it: For such a much-loved movie, *The Usual Suspects* has been underserved on Blu-ray, with just an MPEG-2 encoded single-disc release that's bereft of extras. A previous Special Edition DVD exists with chat tracks, featurettes, etc, and there was even a double VHS edition with the second tape running with a commentary track. Crazy.



THE GUNS OF NAVARONE

Gregory Peck, Anthony Quinn and David Niven are among the cast of commandos tasked with destroying the eponymous weapons in this superb WW2 actioner adapted from Alistair MacLean's novel. It's the sort of square-jawed adventure flick that Hollywood use to make so well. Watch it as part of a double bill with *The Dirty Dozen*.

Get it: Track down Sony Pictures' 50th Anniversary Blu-ray release from 2011. It's also available to view in Ultra HD via Sky Q and Amazon Prime – suggesting a 4K BD release can't be far off.



BIG HERO 6

Sweet-natured Disney animation (based on a Marvel comic) about a young scientist assembling a team of superheroes (complete with an inflatable robot) to, well, save the day. A brilliant example of how to loosely adapt source material to a new audience, it snaffled the Best Animated Feature award at the 2015 Oscars. Fun family fare that also puts in a serious AV shift on Blu-ray.

Get it: Disney's 3D/2D Blu-ray release delivers pin-sharp 1080p imagery joined by a first-class DTS-HD MA 7.1 soundtrack, which excels when it comes to the sound of Hiro's microbots.



LOTR: THE FELLOWSHIP OF THE RING

Frodo and Sam provide the heart of Tolkien's classic fantasy epic, but their journey is at its most thrilling when they're joined by the rest of the Fellowship (Aragorn, Gimli, Boromir *et al*). The leanest and most straightforward of Peter Jackson's Middle-earth movies before all that CGI started to take over, and arguably the best.

Get it: Let's be honest, you probably own this already. If not, the extended edition Blu-ray trilogy boxset is the package to go for.



SUICIDE SQUAD

Like Marvel's Avengers, only nasty and unstable, this anti-hero collective fights and bickers its way through a lurid, lunatic blockbuster that's certainly a change of tack from the usual glossy heroics.

Get it: Freshly outed on Blu-ray with a colourful, crisp 1080p encode, Atmos sonics and extended cut. Warner's Ultra HD release retains the extras and soundmix, but reserves 4K HDR for the theatrical version.

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Issue No.259



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Acceptable	★★★☆☆
Disappointing	★★★☆☆
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TOP 10 Televisions

**Sony KD-65ZD9** → £4,000

★★★★★

Sony finished 2016 on a high with this full-array LED Bravia (with advanced local dimming tech) that claims a 1,800-nit peak brightness. Cinematic, sublime pictures – and Dolby Vision support is a firmware update away. *HCC #267*

**Panasonic TX-65DX902** → £3,300 ★★★★★

This HDR-capable 65-incher wears its Ultra HD Premium badge with pride, and employs a full-array backlight to take control of its impressive luminance talents. Imagery is excellent. *HCC #259*

**LG OLED65E6** → £4,500 ★★★★★

Nominally a step-down from the Signature G6, but most will consider the tweaked bezel design and inferior sonics of this OLED worth settling for considering the price difference. *HCC #265*

**Samsung UE65KS9500** → £3,800 ★★★★★

Replacing the edge LED system of the KS9000 with a direct array yields illumination improvements. Colour-rich, super-bright visuals and smart design. Lacks 3D support. *HCC #265*

**LG OLED65G6** → £6,000 ★★★★★

An essential audition if your pockets are deep enough – this super-slim flat OLED TV combines the tech's PQ charms with a stunning design and nuanced sound performance. *HCC #264*

**Samsung UE55KS9000** → £2,100 ★★★★★

Samsung's quantum dot/edge LED 4K/HDR looker claims UHD Premium certification. Image quality is routinely great, but light banding can distract and 3D is absent. *HCC #260*

**Samsung UE55KS7000** → £1,300 ★★★★★

Straddling the world between genuine budget sets and more premium competitors, this 55-incher is perhaps Samsung's most appealing model. Impressive with both SDR and HDR. *HCC #265*

**Panasonic TX-50DX750** → £1,300 ★★★★★

Mid-range 4K/HDR LED TV. Not as impactful as its DX902 stablemate when it comes to pictures, but a neat design, fun UI and appealing screen size will win it plenty of fans. *HCC #260*

**Hisense 75M7900** → £2,500 ★★★★★

A massive 75in LED set at a bargain price. The appeal is its largescreen 4K playback: a lack of innate brightness and colour subtlety hampers HDR performance. *#267*

**Hitachi 49GHT69U** → £500 ★★★★★

49in 4K screen that could appeal to those on tight budgets. This £500 set offers a smattering of catchup, decent connectivity and a generally enjoyable image. No HDR support, though. *HCC #260*

TECH INFO: TELEVISIONS



4K is here to stay: The TV market is currently dominated by LED-lit LCD screens – plasma is long gone – but OLED is gaining a share as more brands adopt the self-emissive screen technology. 4K/Ultra HD models are now commonplace on displays above the 40in mark, which is where you should be looking for home cinema thrills. Curved models were once achingly trendy, but we're seeing a shift away from such design flourishes. Look out for sets offering support for HDR content, which is part of the UHD Blu-ray specification.



Active or Passive: At the beginning of the 3D era, most TVs featured the active system that uses powered 3D specs to deliver full-res images to each eye. Passive 3D TVs, which are now more common, have a filter over the screen and use non-powered specs with polarising filters. The glasses are cheap as chips, but the resolution of Full HD 3D is halved to 540 lines horizontally (but remains at 1,920 vertically). The same halving occurs with a 4K screen. 3D playback is increasingly being dropped by brands (including Samsung and Philips). Glasses-free 3D, heralded by Toshiba's early ZL2 TV, hasn't caught on. The tech is still being worked on, though...

TOP 5 Blu-ray movies

**Star Trek Beyond 3D**

A rousing Dolby Atmos mix and oh-so-deep stereoscopic 2.40:1 encode make this enjoyable sci-fi adventure a fine AV demo disc. Paramount loads the 1080p BD platter with plenty of informative extra features, too.

★★★★★

**Suicide Squad: Extended Cut**

DC's anti-hero flick, featuring Harley Quinn, Deadshot, The Joker and pals, is impressively quirky and fun – and the Blu-ray offers startling pictures and sound.

★★★★★

**The Jungle Book 3D**

Disney waves its live-action wand at Rudyard Kipling's famous tale of a boy and some beasts. Family fun that's stunning to look at (although the 3D presentation isn't as pleasing as its 2D partner).

★★★★★

**Deepwater Horizon**

Tense, explosive 'docbuster' that reunites Mark Wahlberg with *Lone Survivor* director Peter Berg. Lionsgate's BD offers a breathtaking soundmix, flaming Full HD visuals and a fair collection of extra features.

★★★★★

**Captain America: Civil War**

The third standalone flick for Steve Rogers' baddie-battler is more of an Avengers ensemble (complete with Spider-Man!) that excels in every possible way. The BD has superb 2D/3D imagery and DTS-HD 7.1 sonics.

★★★★★

TOP 10 Blu-ray & Ultra HD Blu-ray players

- 1

NEW ENTRY



Oppo UDP-203 → £650 ★★★★★

Oppo refreshes its player hardware with a superb universal design with Ultra HD playback (including Dolby Vision via firmware later this year). Packed with user adjustments and connectivity. No apps or Darbee Vision, though. *HCC #269*
- 2



Panasonic DMP-UB900 → £600 ★★★★★

The Ultra HD Blu-ray format got an inspiring debut in Panasonic's multi-talented deck that offers a sterling picture performance and 4K-enabled VOD apps. *HCC #259*
- 3



Pioneer BDP-LX88 → £1,100 ★★★★★

The Japanese corp returns to the disc-playing high-end with a universal deck that weighs more than your AVR and drips with user tweaks and processing features. Stinking performer. *HCC #246*
- 4



Oppo BDP-105D → £1,100 ★★★★★

This heavyweight deck builds upon the premium picture performance of the BDP-103D with a wealth of audiophile upgrades – if you're serious about music, check it out. *HCC #234*
- 5



Sony UHP-H1 → £400 ★★★★★

Likely to be its last top-line BD deck before Sony embraces UHD, this player pleases with wide-ranging audio support (including DVD-A!), exquisite construction and slick performance. *HCC #261*
- 6



Arcam FMJ UDP411 → £1,200 ★★★★★

Pristine visuals – including upscaled SD – and a classy sonic performance grant this Arcam instant appeal. The design and build is commensurate with the premium price tag. *HCC #244*
- 7



Sony BDP-S7200 → £180 ★★★★★

A Sony deck without the curious angular design, the BDP-S7200 offers SACD support, hi-res audio streaming and 4K upscaling that's worth investigation. Not too pricey, either. *HCC #239*
- 8



Samsung UBD-K8500 → £430 ★★★★★

Ultra HD Blu-ray player that'll find fans courtesy of its sensible price point, connected smarts and eye-catching visuals. Build quality is a little uninspiring. *HCC #260*
- 9



LG BP556 → £85 ★★★★★

LG's top-of-the-line(!) disc-spinner is actually a budget offering. Design is a bit garish, but the addition of multiroom streaming, some smart apps and file playback sweeten the deal. *HCC #266*
- 10



Samsung BD-J7500 → £150 ★★★★★

This well-priced spinner offers twin HDMI outputs and multichannel phono audio for flexible system hookup, an appealing design, smart features and solid AV chops. *HCC #247*

TECH INFO: BLU-RAY PLAYERS

Matching your deck to your AV receiver: Blu-ray decks are designed to deliver top-notch images but Blu-ray is also about enjoying superior quality sound. When choosing a player, bear in mind the connectivity and decoding features of your AV receiver. If you're still using an older model that doesn't offer HDMI inputs, then you'll need a Blu-ray player with multichannel analogue audio outputs to enjoy decoded hi-res surround sound formats. Similarly, older but still HDMI-equipped receivers may not be able to cope with 3D/4K/HDR output signals, in which case you'll need a deck with dual HDMI outputs – one channelling audio to your receiver amp, the other piping video direct to your TV.

What about consoles?: Both Sony's PlayStation and Microsoft's Xbox platforms support Blu-ray playback – the latter's Xbox One S will even spin your Ultra HD Blu-ray platters. Using a console can be an affordable alternative to a deck, particularly when gaming and media playing talents are taken into account, but the joypad user experience can feel a little odd and you'll need to make sure no one else is playing *Grand Theft Auto* first.



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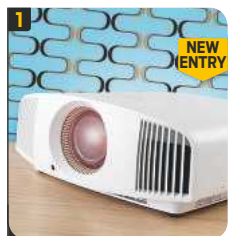
Lucy: The popcorn-munching Luc Besson sci-fi/actioner starring Scarlett Johansson scrubs up great on Universal's Ultra HD Blu-ray release, making the most of the format's dynamic range and wider colour capabilities. Demo heaven.

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TOP 10 Projectors

**Sony VPL-VW550ES** → £9,000

★★★★★

For its top-range domestic SXRD beamer, Sony introduces an HDR Contrast tool that proves useful in fine-tuning its UHD Blu-ray performance. Excels with standard BD content and setup flexibility, too. *HCC #269*

**JVC DLA-X7000** → £5,700 ★★★★★

With contrast and brightness improvements over the more affordable DLA-X5000, this is a great bigscreen option, although its SDR performance impresses more than HDR. *HCC #259*

**Sony VPL-HW45ES** → £1,850 ★★★★★

The most affordable model in Sony's home cinema range, the Full HD-resolution 45ES features excellent light management for a routinely cinematic image. Great value. *HCC #263*

**ViewSonic Pro7827HD** → £600 ★★★★★

Pictures impress from this single-chip DLP budget option that carries a third HDMI input designed for smart sticks. Includes ISF calibration. 3D spex are an optional extra. *HCC #261*

**JVC DLA-X5000** → £4,000 ★★★★★

Fourth-gen eShift projector marries its pixel-shifting talents with a contrasty performance, HDR support and HDMI 2.0a. Not the smoothest with motion, and price tag is considerable. *HCC #257*

**Epson EH-TW9300** → £3,000 ★★★★★

Epson brings HDR playback and 4K up-rezzing to an agreeable price tag. Colourful and well-contrasted visuals, but don't expect an HDR knockout. *HCC #266*

**Epson EH-TW7300** → £2,200 ★★★★★

Similar performance traits to its bigger brother (above), but with reductions in max brightness (and claimed contrast). Currently the most affordable HDR model around. *HCC #269*

**Optoma GT5000** → £1,000 ★★★★★

Ultra short-throw model with healthy brightness that makes sense for regular living rooms where a traditional install isn't possible. Casts Full HD images from just 30cm. *HCC #261*

**BenQ W2000** → £800 ★★★★★

Average black-level performance limits this model's all-round appeal, but elsewhere this Full HD DLP budget PJ catches the eye with its calibration options and detailed visuals. *HCC #257*

**Optoma HD27** → £800 ★★★★★

Another budget beamer where black levels aren't exemplary, but there's plenty to like here including the small form factor and vibrant colours. Limited zoom of 1.1x. *HCC #264*

TECH INFO: PROJECTORS



Installation: Although projectors can be temporarily placed on a cupboard, stand or shelf situated at the rear of the room (use the adjustable feet on its base to level the image so that it aligns with the screen), a much better long-term solution is to mount it on your ceiling with an appropriate bracket. Projectors can be quite heavy, though, so it's important to ensure that the bracket is attached firmly – ideally, it should be secured to a joist. Position your PJ so that an imaginary line from its lens to the opposite side of the room hits the screen exactly half-way along its width. The location of your screen should therefore dictate where your projector is. A decent tape-measure or laser pointer will help you to determine the position.

Throw distance: Throw distance specifies the distance between the projector and screen for a focused image of given size. As the vast majority of projectors are equipped with a zoom lens, minimum and maximum throw distances are often specified – say, 3.01m to 6.08m for a 100in. 16:9 image. Shorter throw distances are ideal for smaller rooms, and longer ones for larger rooms. Simple.

Throw ratio: Sometimes, a manufacturer will quote a throw ratio rather than a throw distance. This is basically the throw distance divided by the image width. To get the projected image size, divide the distance between projector and screen by the specified figure. Once again, the inclusion of a zoom lens means that upper and lower figures are usually specified.

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TOP 10 Speakers


- 


1 Monitor Audio Gold 300AV → £7,150 ★★★★★
MA revamps its Gold Series and we pay serious attention. This big-ticket package excels across the frequency range, offers exquisite design and packs setup flexibility via the dipole/monopole FX surrounds. *HCC #251*
- 


2 Q Acoustics 3000 5.1 Cinema Pack → £700 ★★★★★
A superior compact package with driver improvements over the previous 2000i series. The two-way cabinets and dual-driver sub combine to offer impressive audio for the money. *HCC #247*
- 


3 XTZ Cinema Series 5.1.4 → £3,700 ★★★★★
Spectacular dynamics, gut-thumping bass and a sense of scale that most systems at this price only dream of – XTZ's 3D audio-ready setup is an easy recommendation. *HCC #259*
- 


4 KEF R Series 7.1 → £6,500 ★★★★★
A 7.1 array mixing dipolar and direct surrounds, this authoritative package takes its cues from KEF's Blade concept speaker and offers faultless, largescale home cinema sonics. *HCC #217*
- 

5 Monitor Audio Bronze B5 AV → £1,500 ★★★★★
Like their Gold siblings, these feature switchable surround speakers and MA's C-CAM drivers. Smaller in stature and output, but eminently more affordable. *HCC #254*
- 

6 Wharfedale DX-1SE → £400 ★★★★★
Delightfully compact 5.1 package (although with two-way satellite speakers) that blends a tidy design with crisp surround sonics at a very tempting price. *HCC #267*
- 

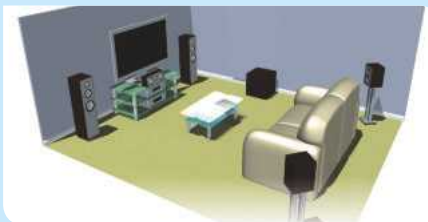
7 ELAC Debut 5.1.2 → £1,950 ★★★★★
Well-priced floorstanding Atmos system that manages to balance subtlety and precision with an exciting delivery. Subwoofer includes app-based room EQ. *HCC #262*
- 

8 DALI Opticon 5.1 → £3,200 ★★★★★
The Opticons employ driver designs created for DALI's higher-end models, and showcase a talent for both involving music presentation and high-octane home cinema. *HCC #260*
- 

9 Dynaudio Emit 5.1 → £3,200 ★★★★★
Entry-level for Danish brand Dynaudio – still a hefty chunk for a 5.1 array. What the money gets you is a wonderfully natural and cohesive soundstage and stonking build quality. *HCC #263*
- 

10 Q Acoustics Concept 5.1 Cinema Pack → £1,750 ★★★★★
Step-up Q Acoustics offering with handsome floorstanders joined by standmount surrounds employing the Concept Gelcore construction. Classy, consistently neutral performance. *HCC #257*

TECH INFO: SPEAKERS



Centre speaker: Handles most of the dialogue and onscreen effects. Should be positioned above or below the screen as close to it as possible. Of course, if you're using a projector screen, it should ideally be placed behind it.

Front speakers: Left and right speakers should be positioned either side of the screen, in line with the centre. Turn the speakers in slightly to face the listener if there isn't an even movement of sound across the front of the room.

Subwoofer: Can be positioned wherever it sounds best or can be tucked out of sight due to the non-directional nature of low-frequency signals. Be aware that close positioning in corners or next to walls can create a boomy effect.

Surrounds: Position alongside the listener, pointing in or slightly behind the ears for a good surround effect. The back wall is not a good position for surrounds – it is, in fact, where you should locate the sixth and seventh speakers (rears) in a traditional 7.1 array.

DEMO DELIGHT

Deepwater Horizon: Based on the real-life oil rig disaster in 2010, this good-looking thriller starring Mark Wahlberg features a terrifying Dolby Atmos soundmix on both its Full HD and 4K Blu-ray releases. Placing you right in the centre of the unfolding chaos through precise effects placement and fabulous dynamics, it's, er, very slick...



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Photo courtesy of UK Home Cinemas

TOP 10 AV Receivers/AV Processors

**Anthem MRX 1120** → £4,000

★★★★★

Combining Anthem's superb ARC room EQ system with 11-channel amplification makes this an essential consideration for full-spec Atmos setups. Muscular, precise sound. No networking skills, though. *HCC #265*

**Arcam AVR850** → £4,500 ★★★★★

High-end seven-channel AVR marrying Class G amplification and Atmos (and future DTS:X) support with talented Dirac Live Room EQ. 11-channel pre-outs for full-fat setups. *HCC #257*

**Denon AVR-X4300H** → £1,300 ★★★★★

Nine-channel receiver with HEOS multiroom integration and 11-channel processing (Atmos, DTS:X, plus Auro-3D as a paid-for upgrade). Great, detailed sound and foolproof usability. *HCC #267*

**Trinnov Audio Altitude32** → £27,000 ★★★★★

Capable of outputting 32 discrete channels and mapping Dolby Atmos, DTS:X and Auro-3D sources to any setup via advanced EQ. Only premium cinema owners need apply, though. *HCC #262*

**Denon AVR-X2300W** → £500 ★★★★★

This almost entry-level Denon offers excellent value for money, with a well-balanced sound signature and bulging feature set. Seven-channel design won't suit all setups. *HCC #263*

**Yamaha RX-A3060** → £2,000 ★★★★★

New nine-channel flagship from Yamaha features excellent room EQ implementation, well-judged DSP modes, and an even-handed, effortless sound. *HCC #264*

**Denon AVR-X6300H** → £2,000 ★★★★★

Denon bundles 11 channels of power, plus cutting-edge features, into this crisp, articulate AV receiver. Ideal partner for 7.1.4 setups, but not quite the muscle-monster you might expect. *HCC #269*

**Marantz NR1607** → £600 ★★★★★

The latest slim-line AVR from Marantz continues the brand's good work when it comes to space-saving sonics. Seven-channel amp with object-based audio. Punchy, lively sound. *HCC #266*

**Pioneer VSX-1131** → £550 ★★★★★

Seven-channel model with Atmos and DTS:X support that features an overhauled remote control and UI to improve usability. Bass-rich, energetic sound. *HCC #265*

**Onkyo TX-RZ800** → £1,050 ★★★★★

Feature-packed (DTS:X, HDCP 2.2) and sporting a new, clean design, Onkyo's mid-priced nine-channel AVR is easy to use and sounds sprightly, if a little short on aggression. *HCC #253*

TECH INFO: AV RECEIVERS



Tackling new heights: A recent innovation in AVR circles is the introduction of Dolby Atmos, the object-based sound format that has taken off in commercial cinemas and is supported in the home by the likes of Onkyo, Pioneer, Denon, Marantz and Yamaha. This requires new height speakers in addition to a regular 'flat' 5.1 or 7.1 speaker configuration. The heights can either be physically mounted in/on your ceiling, or provided via up-firing reflective models. Setup can be complex, but the results are certainly impressive. Atmos-encoded Blu-rays are a bit thin on the ground, but you can use Dolby Surround post-processing with regular 5.1/7.1 soundtracks to get the most from your new AVR/speakers. Rivals to Atmos are Auro-3D, which uses height speakers in a different configuration, and DTS:X. Most AVR brands have pledged support for the latter; software isn't as widespread as Atmos.

How much power?: Many of the mass-market AV receiver manufacturers are involved in a specifications race to see who can say their model is the most powerful, which can be confusing for consumers. For instance, both Krell's £7,000 S-1500 seven-channel power amp and Yamaha's £500 RX-V675 both claim 7 x 150W – the important part is that Krell's figure is into an eight-ohm load with all channels driven, and that Yamaha's is with one channel into a four-ohm load, which is hardly a real-world situation. The best advice is ignore the numbers game and get a demo of your desired AVR with the same, or similar, speakers that you intend to partner it with.

TOP 5 Bonus features

**The Trouble with Titian Revisited**

Arrow Video's Blu-ray of '60s Roger Corman horror *Blood Bath* includes four different cuts of the movie plus an 81-minute doc helping you make sense of its bizarre production history.

★★★★★

**Star Wars: The Force Awakens commentary**

Director JJ Abrams provides a trivia-packed chat track on the Collector's Edition Blu-ray release of Disney's box office killer. Indispensable for *Star Wars* geeks.

★★★★★

**Napoleon: Triptych**

On a package that also features a remarkable five-hour commentary track, the option to watch the movie's three-panel footage on three displays (via three discs) is the icing on the cake.

★★★★★

**The Giant's Dream**

Superior hour-long documentary on *The Iron Giant*'s Signature Edition Blu-ray that is refreshingly honest about the toon's production and its now-famous box office failure. Brilliant stuff.


★★★★★


**You're so cool, Brewster!**


Fan-pleasing 147-minute retrospective *Fright Night* documentary (edited down from an original much-longer crowd-sourced movie) featuring exclusive interviews and plenty of production nuggets.

★★★★★


TOP 10 Subwoofers


- 

SVS SB-2000 → £600 ★★★★★
This follow up to the SB-1000, which incorporates a new 12in driver and revamped Sledge DSP amplifier, offers immense value for money. A mid-sized woofer that imbibes your Blu-rays with potent LFE, the SB-2000 sounds quick and taut, and is a perfect introduction to what a truly good sub can accomplish. *HCC #233*
- 


REL 212SE → £2,750 ★★★★★
Lush design joins engineering nous in this premium sub with two active 12in drivers supported by a pair of passive radiators. Loud, deep and impactful, your BDs are in safe hands. *HCC #246*
- 


JL Audio Fathom f212v2 → £6,500 ★★★★★
A second-gen outing for JL's 2 x 12in monster, with an increase in power (now 3,600W) and improvements to the room EQ system among the changes. Sounds as good as you'd imagine. *HCC #261*
- 


REL S/3 SHO → £1,450 ★★★★★
The 10in, 400W S/3 is part of REL's revamped 'Super High Output' Serie S line. Performance is excellent, with speed, control and a scale bigger than you might expect. *HCC #264*
- 

Bowers & Wilkins PVID → £1,200 ★★★★★
One of the coolest-looking subs on the planet, B&W's PVID uses DSP trickery to craft an opulent low-end performance. The touch-sensitive OLED display is pure class. *HCC #212*
- 

BK Electronics P12-300SB-DF → £475 ★★★★★
Bass heads can get outrageous value for money in the shape of BK's overperforming 12in sub. A front-firing model is also offered, and other finishes knock the ticket down to sub-£400. *HCC #247*
- 

ELAC SUB 2070 → £1,300 ★★★★★
A dual-driver, 600W sealed sub with control and onboard EQ system driven by a free Android/iOS app. Meaty, assured performance, with useful tweaks offered. *HCC #261*
- 

Eclipse TD520SW → £3,000 ★★★★★
This twin 8in woofer, driven by ICEpower amplification, aims for ultimate speed and tone – and succeeds. Simply put, the TD520SW is worth every penny of its asking price. *HCC #249*
- 

SVS PC-2000 → £800 ★★★★★
The cylinder construction means this 12in, 500W design can boast a large cabinet but a relatively small footprint. Good value with weighty, slamming bass, but a little lacking in nuance. *HCC #267*
- 

Artison Nano 1 → £800 ★★★★★
Artison's media room-friendly woofer tucks twin 6.5in bass drivers and a 300W amp into its compact frame. Bass extension isn't the deepest, but this is tight, fast and heaps of fun. *HCC #253*

TECH INFO: SPEAKERS



Why use more than one sub?: Using two subwoofers (or perhaps four) should, in theory, bring huge rewards in terms of bass performance. But remember that LFE is a tricky beast to control. Running two subs may simply double problems in your room like room boom and suck-outs, where outgoing and reflected bass sounds cancel each other out. If you have some flexibility in where you place subwoofers, trial and error may well throw up some interesting results. The acoustics wizard Floyd E Toole (his book *Sound Reproduction: The Acoustics and Psychoacoustics of Loudspeakers and Rooms* is fine bedtime reading) suggests one LFE sub to either side of the room may be best for accuracy while placing them in the front corners would be best for overall bass power. Yet there is no hard and fast rule as to what will work best for every room, and you may find that simply using one (large) subwoofer is preferable as it's the easiest to get sounding right.

DEMO DELIGHT

Star Wars: The Force Awakens: Bass is a constant (phantom?) menace in Disney's *Star Wars* sequel, whether it's underpinning the complaining, rumbling engine of the Millennium Falcon, adding weight to frequent explosions or used to bring scale and depth to locations. It seeps into every element of the Blu-ray's DTS-HD MA 7.1 soundmix, meaning your subwoofer is called upon to put in a serious shift.

TOP 5 Console games



Call of Duty: Infinite Warfare

The sci-fi trappings may upset *COD* purists, but this is one of the series' best entries in years. The action-packed single-player campaign is a blast; multiplayer extends the fun.

★★★★★



LEGO Star Wars: The Force Awakens

Brilliant arcade puzzler (with some light action) that makes great use of *Force Awakens*' set-pieces and chucks in other levels set further afield in the *Star Wars* universe.

★★★★★



Gears of War 4

A thrilling continuation of the Xbox action stalwart, with an absorbing, well-scripted single-player campaign and wonderfully colourful and vibrant visuals (with HDR on Xbox One S). Give it a spin!

★★★★★



No Man's Sky

Massive, intergalactic exploration that feels like a cross between *Minecraft* and *Elite Dangerous*. Relaxed, absorbing gameplay with a gorgeous 50s/60s sci-fi aesthetic and beautiful orchestral score. Odd but fun.

★★★★★



Uncharted 4: A Thief's End

The final entry in this blockbuster franchise is simply epic, both in terms of gameplay (driving, puzzle-solving, stealth battles...) and the exquisite 1080p visuals. Roll on next year's movie adaptation!

★★★★★

TOP 10 Accessories

- 1 KEF R50 → £600 ★★★★★**
 KEF's Dolby Atmos-enabled reflective modules are a smart choice for anyone looking to beef up their speaker system. Using the company's Uni-Q point source drivers pays real dividends, enabling full-range sonics that reach deep into your cinema room. Styling and build quality are first rate. £600 gets you a pair – you'll soon want four... *HCC #252*
- 2 Amazon Echo Dot → £50 ★★★★★**
 Less impressive as a standalone speaker than its larger sibling, but a third of the price, and its 3.5mm output lets it work with third-party kit. Fun AI experience, and a real bargain. *HCC #269*
- 3 Nvidia Shield Android TV → £150 ★★★★★**
 The Android TV platform gets the hardware it deserves – this stylish set-top box offers potent processing, resulting in a slick gaming and media playback experience. 4K capable. *HCC #262*
- 4 QNAP HS-251 → £300 ★★★★★**
 Adding HDMI connectivity to a NAS device is surprisingly useful – and this slim-line model from QNAP is styled to grace your living room. Flawless media playback and responsive. *HCC #248*
- 5 Logitech Harmony Elite → £270 ★★★★★**
 Flexible and relatively easy to set up, this all-in-one remote package combines touchscreen handset and hub with smart device app. Worthwhile if you have a stacked kit rack. *HCC #256*
- 6 Devolo Wi-Fi ac Repeater → £50 ★★★★★**
 Simple plug-based add-on that extends the range of your Wi-Fi network, and offers hardwired access. Could be just the ticket for your loft-based movie room. *HCC #269*
- 7 Xbox One S → From £250 ★★★★★**
 The retooled Xbox One adds Ultra HD Blu-ray playback, 4K streaming and HDR gaming to the feature list. Available in 500GB/1TB/2TB versions. *HCC #264*
- 8 PSB Imagine XA → £350 ★★★★★**
 These two-way Dolby Atmos-enabled upfiring speakers are fairly chunky, but work well at creating a height layer and the £350-per-pair ticket makes them an enticing option. *HCC #264*
- 9 DVDO iScan Mini → £275 ★★★★★**
 HDMI 4K upscaler (using Silicon Image's VRS processing) that teases sharpness from HD and SD sources. A good fit for an entry-level or mid-range 4K TV. *HCC #264*
- 10 Sony PlayStation 4 Pro → £350 ★★★★★**
 A mid-cycle upgrade of Sony's console brings 4K and HDR gaming, plus app streaming, but not UHD BD playback. Gorgeous gameplay is the USP here. *HCC #268*

TECH INFO: MEDIA PLAYERS



What about my TV?: Most flatscreen TVs from the major brands (Sony, Samsung, Panasonic, LG, Philips, Hisense, etc) also incorporate media player functionality, using Ethernet or Wi-Fi to stream from your home network, or from plugged-in USB drives. Most modern Blu-ray players offer this, too. However, file support is rarely as extensive as on dedicated devices from the likes of Western Digital and A.C. Ryan, and our experience shows some are more adept at playback from USB than over a network. Nor (obviously) is a TV or BD player portable. If your media collection extends beyond JPEGs and MP3s into lossless audio rips and esoteric HD video formats, then a standalone player is a good investment.

Storage: You can, if you really want, store all your files on a plethora of USB drives, or on your PC, but it's best to get a NAS (Network Attached Storage) device for simplified sharing of your media across a network with



multiple players, such as one from Netgear's ReadyNAS range (pictured). These dedicated devices often offer RAID array file backup, and are managed via browser software. Storage capacity can be anything from 1TB to 12TB and beyond.

TOP 5 Blu-ray/DVD boxsets


Game of Thrones: The Complete Sixth Season

Another brilliant BD boxset for HBO's jewel in the crown. Atmos ensures AV thrills, and the story remains strong despite no longer being based on George R. R. Martin's source novels.

★★★★★


Gomorrah: Complete Seasons 1 & 2

Thrilling Italian crime drama based on the same book as the 2008 film. This seven-disc set changes the audio from LPCM 2.0 for S1 to DTS-HD 5.1 mixes for the second run.

★★★★★


Daredevil: The Complete First Season

Marvel's 13-part series originally streamed on Netflix, and is now available on a boxset that impresses with imagery and DTS-HD 5.1 mixes, but is bereft of extra features.

★★★★★


Dissent and Disruption: Alan Clarke at the BBC (1969-1989)

Mega boxset with a mega price tag (£150) featuring a comprehensive collection of Clarke's work spread across 11 BDs and two DVDs.

★★★★★


The Hunger Games: The Complete 4-Film Collection

Ultra HD package with pleasingly crisp 2.40:1 encodes, new Dolby Atmos mixes for the first two movies and a bulging collection of extra features.

★★★★★

TOP 10 Soundbars & Soundbases



Yamaha YSP-5600SW

→£1,900 ★★★★★

With its 46 drivers (including upfiring) this premium 'bar delivers precisely-steered and immersive audio, even of the Atmos variety. Potent wireless sub and 4K-capable HDMI switching sweeten the high-end deal. *HCC #254*



Canton DM55 →£330 ★★★★★

Canton's smallest soundbase still delivers big sonic thrills. Twin woofers underpin clean and crisp mids and highs, and build quality is first-rate. Doodle to use. Bluetooth built-in. *HCC #260*



Samsung HW-K950 →£1,300 ★★★★★

Soundbar with additional wireless rears and Dolby Atmos support via four upfiring drivers. Impressively largescale performance, good connectivity. No native DTS support. *HCC #263*



Cabasse Stream BAR →£850 ★★★★★

Soundbar/hi-res speaker that's blessed with real musicality, but doesn't fall short when it comes to energetic film soundtracks. HDMI in/out, but v1.4 only. *HCC #269*



Geneva Model Cinema →£550 ★★★★★

The Swiss brand comes up trumps with this five-driver Bluetooth-capable soundbase. It musters a massive sound with huge dynamics, rich bass and articulate highs. *HCC #261*



Q Acoustics Media 4 →£330 ★★★★★

A no-nonsense offering from the speaker specialist, which ignores HDMI inputs and daft DSP modes in favour of creating a nuanced, solid 2.1 soundscape. *HCC #238*



DALI Kubik One →£800 ★★★★★

The Danish speaker brand brings a slice of glamour to your setup with this stylish soundbar. No HDMI or digital decoding but it packs a tight, lively and nuanced sound. *HCC #269*



Sony HT-RT5 →£500 ★★★★★

Sony joins the growing 'soundbar with wireless surrounds' market with an enjoyable debut that packs some worthwhile DSP modes and plenty of media-savvy functionality. *HCC #257*



Acoustic Energy Aego Sound3ar →£200 ★★★★★

Smallscale second-room option impresses with its punch and clarity, but a few EQ tweaks would have been nice. No HDMI connectivity. *HCC #264*



Orbitsound A70 →£500 ★★★★★

Not overly specified – there's no HDMI, for instance – but this elegant 'bar/sub combi just about justifies its price tag with an enveloping and very well-balanced performance. *HCC #251*

TECH INFO: TV PLATFORMS



TV addicts – go free, or pay-to-view?:

The analogue switch-off has created a competitive market in free-to-air platforms, while Sky and Virgin Media are squaring up to the likes of EE TV, Amazon Prime and Netflix. Deciding which service is right for you can be complex, and you may find your needs are best catered for by a combination.

Sky+HD: The long-running satcaster offers a plethora of HD channels, with content including recent movie releases, live sports and sought-after US shows. Hardware options include the 2TB dual-tuner PVR. Premium Sky Q service offers wireless multiroom and 4K content among its tricks.

Virgin Media TiVo: The cable giant offers a three-tuner PVR (1TB) with intelligent TiVo recording tricks, catch-up apps (including Netflix and Spotify), and over 240 channels (depending on package). Premium Sky content can be added on a monthly basis.

Freeview: Common option when it comes to TVs and STBs. Freeview offers 13 HD channels plus SD and radio. Freeview Play adds IPTV integration to the EPG – and you'll find it on Panasonic and Finlux TVs.

Freesat: Satellite service offering a similar – but not identical – channel lineup to Freeview, delivered via a dish but without a subs cost. Budget-priced STBs are available.

YouView: This relatively new kid on the block integrates the UK's main catchup portals directly into a backwards EPG. Again, channels are broadly similar to Freeview and there's no contract. Humax (PVRs) and Sony (TVs) are leading the hardware charge.

TOP 5 Back-catalogue Blu-rays



His Girl Friday

Criterion rustles up the definitive release of this 1940 Cary Grant/Rosalind Russell classic. Superb 1.33:1 monochrome transfer, plus a wealth of extras on this two-disc BD, including the 1931 flick *The Front Page*.

★★★★★



To Live and Die in L.A.

William Friedkin's sun-soaked 1980s crime flick gets a deserved high-quality BD release, with a director-approved 4K restoration and abundance of new extra features making this an essential pickup.

★★★★★



10 Rillington Place

Nicely timed to coincide with the recent BBC series, this debut Blu-ray release from new UK indie label Indicator adds a 32-page booklet to a striking 1080p encode of the grimy 1971 true-life serial killer movie.

★★★★★



It Came From Outer Space

Universal unleashes this 1953 science-fiction classic on a fine-looking (and well-priced) 3D Blu-ray release. Audio thrills come via a DTS-HD 3.0 presentation of the original three-track soundmix.

★★★★★



Crouching Tiger, Hidden Dragon

An assured 4K debut for Ang Lee's Mandarin-language martial arts drama. Sony Pictures' restoration work reaps rewards; a new Dolby Atmos mix is another reason to buy.

★★★★★

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TOP 5 PVRs

**Virgin Media TiVo, £subscription**

This triple-tuner PVR offers recording flexibility, useful features – you can undelete deleted shows! – and smart TiVo functionality. If you're in a cable area, consider it.

★★★★★

**Sky Q, £subscription**

Sky's new top-tier product offering dazzles with its image-rich user interface, wireless multiroom skills and recording flexibility delivered by the PVR's 12 tuners. Now supports 4K content.

★★★★★

**Humax HDR-1100S, £190**

Freesat Freetime PVR that impresses with its usability, VOD options and form factor – Humax's small, white box will slot into any kit rack. We tested the 500GB version – 1TB and 2TB models are also available

★★★★★

**Humax DTR-T4000, £subscription**

This YouView-based PVR is required to get BT Sport's new Ultra HD channel – available to those with BT fast fibre and a BT TV sub. Easy to use and with 1TB of storage

★★★★★

**EE TV Smart Box £subscription**

This quad-tuner 1TB PVR, from the mobile/broadband corp, offers innovative Replay 24-hour channel recording and great Smart device streaming. Needs more catch-up though

★★★★★

TOP 5 Headphones

**Sony MDR-HW700DS, £800**

Comfy cans supplied with an HDMI surround processor, enabling multichannel audio to be fed to a virtual 9.1-channel soundstage. The effect is superb – great for late-night listening

★★★★★

**Sony MDR-1ABT, £300**

Another cracking Sony pair with a good sonic balance, here with integrated Bluetooth allowing for cable-free movie watching (although they can be used wired too). Large design perhaps not suited to travel

★★★★★

**Lindy Cromo NCX-100, £100**

A cost-effective domestic option and great for travelling, these noise-cancelling 'phones (which can also be used as a normal passive design) feature a pleasant, balanced sound

★★★★★

**PSB M4U1, £220**

Aimed at both home and on-the-move use (and supplied with a carry case and two cable options), the M4U1s offer solid bass response and impactful highs. Build quality is good, as is comfort

★★★★★

**Bose QC35, £290**

The latest in the QuietComfort range ditches the wired connection in favour of Bluetooth but retains Bose's luxurious styling and rich performance. Noise-cancelling mode is very efficient.

★★★★★

TOP 5 Wireless speakers

**KEF Muo, £300**

Portable Bluetooth speaker that's a cut above much of the competition. KEF's sonic knowhow results in a punchy, dynamic presentation that cherishes lossless rips. Excellent build quality

★★★★★

**Sony SRS-X11, £60**

An affordable palm-sized Bluetooth speaker with internal rechargeable battery, Sony's SRS-X11 is supremely portable and sounds decent for the money. A neat little gizmo. Get two and they can work in stereo

★★★★★

**Q Acoustics BT3, £280**

Bluetooth stereo pair with optical input makes a good alternative to a soundbar (there's even a subwoofer pre-out) while remaining a dab hand at music. Neat and tidy design, good price.

★★★★★

**Simple Audio Listen, £400**

Desktop stereo speakers with Bluetooth support, these benefit from separate tweeter/midbass units and a classy construction. Performance is well-balanced, and a subwoofer output is offered for extra bass

★★★★★

**Star Wars Bluetooth speakers, £150 each**

Bring a touch of fun to your tunes with these Stormtrooper and C-3PO replica Bluetooth speakers from ACWorldwide. Solid sound quality and gorgeous styling

★★★★★

HOME CINEMA

Choice

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CONTENTS SUBJECT TO CHANGE – BUT ONLY FOR THE BETTER

ISSUE
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HDR MAN AND MR BIGSCREEN ALMOST CAME TO BLOWS, UNTIL...



AV Avenger

When it comes to his home cinema display, **Steve May** keeps returning to his now 'old-school' Full HD projector – and he's waiting for a genuine reason to make an upgrade

IF YOU HAD the choice of watching a 4K HDR-enabled TV or a 1080p projector, what would you choose? One is widely regarded as the state-of-the-art in display technology, with a price tag to match if you want full-fat HDR, while the other is tried and tested and generally cheap as chips.

I'm faced with this dilemma on an almost daily basis, made worse by the fact there's a constant flow of really nice sets on the conveyor belt. Yet perhaps surprisingly I still opt to binge my boxsets using a 1080p projector. It's not even a new HD model, but a mid-range Epson of uncelebrated vintage. Why such intransigent perversity, you might reasonably ask?

The TV versus PJ debate is a perennial one with AV fans. But despite disparity in terms of tech and performance, my preference hasn't actually changed that much. I still like to go big when I go home. A 110in 1080p image generally trumps a 65in 4K one.

In my defence, I could argue that people have forgotten just how great a 2K image can look. Familiarity may breed contempt, but a 1080p picture scales really well. **Remember when you saw Avatar at the cinema? That was 2K.**

I recently picked up the Blu-ray boxset of sixties cult sci-fi show *Lost in Space* (US import, region free) with fresh HD transfers and they look pretty darn amazing on a super-bigscreen too. 1080p still rocks!

Of course, I wouldn't say no to a 4K projector upgrade. Unfortunately the best I've seen (JVC's DLA-Z1 and Sony's VPL-VW550ES spring to mind) are well above my pay grade, not to mention too physically big for my viewing room. Hopefully that will all change when DLP finally enters the 4K fray. It's been over a year since I first caught a demo of Texas Instruments' single-chip UHD solution, and it looked fantastic. Now the first models, from BenQ and Optoma, are nearly here.

DLP creates an eight-million pixel UHD image using four million mirrors. Each mirror is capable of switching over 9,000 times per second, effectively creating two unique pixels on the screen during every frame. It sounds like pure genius.

Unlike TV, where HDR is now touted as more important than detail, improved resolution remains the primary benefit of 4K projection. I don't care what you say, HDR from a PJ just isn't the same as HDR on the telly. Projectors don't have the lamp power to deliver comparable spectral highlights, particularly if you want to keep operational noise at manageable Eco levels, and lamp-life reasonable.

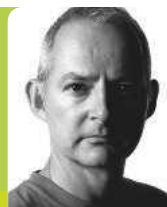
To be honest, my home cinema ideal would be a living room version of Dolby Cinema. Using double-stacked laser projectors and Dolby Vision HDR DCPs, Dolby Cinema offers hands down the best theatrical experience on the planet right now (I'll concede IMAX Laser runs it a close second). Inconveniently, there are no Dolby Cinema commercial theatres available in the UK currently, and just a handful across Europe, so you'll have to take my word for it.

I've seen more Dolby Cinema than most, but only because I'm a master of disguise and regularly bluff my way into Dolby HQ to take advantage of the in-house screening room. *Rogue One* looked immeasurably better in Dolby Vision than it did when I saw it in a vanilla-flavoured 4K theatre, the first (mainly darkly-lit) half gaining depth and shadow detail – and interestingly, those CG cameos looked considerably more believable in Dolby Vision.

So 4K TV or 1080p projector? To quote Grand Moff Tarkin: 'This bickering is pointless!' Guess I'll make do with both. At least until 4K DLP laser projectors come along ■

*Is the size of your screen key to your AV enjoyment?
Let us know: email letters@homecinemachoice.com*

When **Steve May** saw *Avatar* at the multiplex, he came out thinking that 3D was going to be the future of home entertainment. Weird, huh?





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